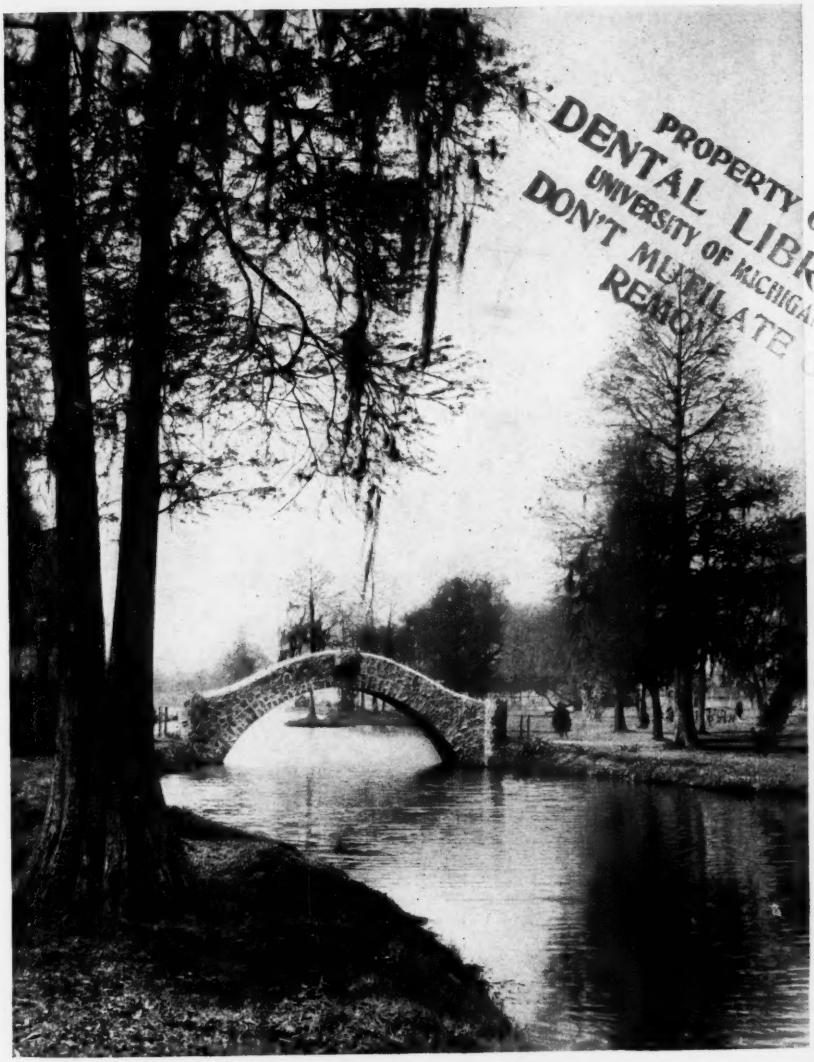
THE DENTAL DIGEST



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SEPTEMBER 1915
VOL. XXI NO. 9
EDITED BY
GEORGE WOOD CLAPP, D.D.S.
PUBLISHED BY
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THE DENTAL DIGEST

GEORGE WOOD CLAPP, D.D.S., Editor

Published monthly by The Dentists' Supply Company, Candler Bldg., Times Square, 220 West 42d Street, New York, U. S. A., to whom all communications relative to subscriptions, advertising, etc., should be addressed.

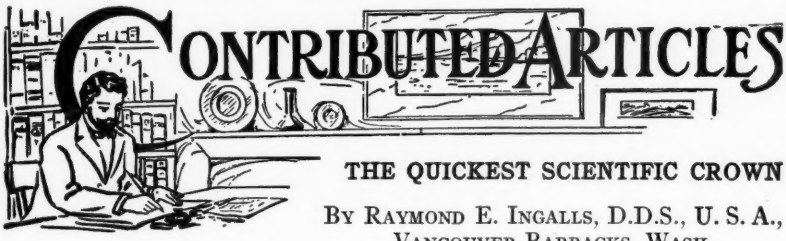
Subscription price, including postage, $1.00 per year to all parts of the United States, Philippines, Guam, Cuba, Porto Rico, Mexico and Hawaiian Islands. To Canada, $1.40. To all other countries, $1.75.

Articles intended for publication and correspondence regarding the same should be addressed EDITOR DENTAL DIGEST, Candler Bldg., Times Square, 220 West 42d Street, New York, N. Y.

The editor and publishers are not responsible for the views of authors expressed in these pages.

Entered as Second Class Matter, at the Post-Office at New York City. Under the Act of Congress, March 3, 1879.

Vol. XXI **SEPTEMBER, 1915** **No. 9**



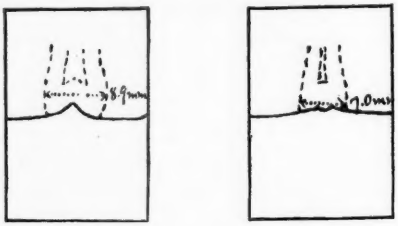
THE QUICKEST SCIENTIFIC CROWN

BY RAYMOND E. INGALLS, D.D.S., U. S. A.,
VANCOUVER BARRACKS, WASH.

The making of a scientific, gold-shell, band crown without the use of impression materials or plastics of any kind may appeal to some, not all. A number of men are making these crowns daily in their practices, as an unqualified mythical statement; but it is true that this method of making crowns was undoubtedly employed before the Horace Wells's generation. An attempt is made to improve and to expedite the already quick plier crown. The means to effect this result may be more properly called a method than a system.

Any crown that requires as a fundamental principle in its technique, a certain amount of guesswork—not to be confused with skill—is all wrong; for, "a chain being no stronger than its weakest link," the crown is destined to fail, either in its entirety or partially. Seventy-five per cent. of the value of a properly constructed crown lies in the fit at the cervical. Observations of cases in practice will corroborate the statement that the gums surrounding no less than nine out of every ten teeth bearing shell crowns present a more or less unhealthy, hyperemic condition—"septic crown and bridge work," due to irritation as the result of a hurriedly prepared abutment or ill-fitting band, or both. The cause

is more apt to be the former. We have been taught to remove all the enamel from the crown in order to make the greatest diameter at the gingival. Laziness or unconscientiousness are more often the cause of this neglect than lack of training. When a stipulated fee is asked for any crown, regardless of the operating time required for each case, the unscrupulous dentist will prepare an abutment in ten minutes that should take a half-hour of his time. Certainly, it is a short-sighted, business policy. No matter how beautiful a crown in the mouth may appear to the layman, it is positively ugly and repulsive to the dentist when an inflammatory condition at the neck indicates poor operative work. The occlusion, contact point and contour are all of the utmost importance; but, if there is a V-shaped space under the band to catch débris and be-



a b

Fig. 1

come foul-smelling with the subsequent, well-known, inevitable result, the foundation is jeopardized and the crown is a menace to the life of the tooth until removed.

Two shell crowns are in vogue, the band and the seamless. There are two general classifications of the numerous methods employed and the systems on the market for making seamless crowns. The first is where the abutment is prepared in the usual way, a measurement taken of the root, and a gold thimble made of equal or *nearly* the same inside circumference; or a tooth form is selected with the correct measurement at the neck or *nearly* so. The occlusion, contour, and contact points are matters of still greater conjecture. We must admit that the operator is almost sure to be lucky a part of the time. The second general method is more scientific. An impression is taken of the tooth, the disintegrated structure is rebuilt with plastics or plaster either in the mouth or on the model, and a seamless crown is swaged out exactly the same as the reproduction. Now, here is where more guess work takes place—the abutment is prepared to fit the crown or *nearly* so. The portion of the model that represents the gums is trimmed away to a point where the margin of the crown reaches under the free margin of the gums. The plaster

gum is trimmed up to the plaster tooth or *nearly* there, or perhaps a little beyond. Other than this important objection, the crown should be one of the most perfect made.

We must all agree that there is not the remotest chance for an argument as to the merits of a skilfully made shell crown by the band and impression method, whether the morsal surface and cusps are cast or swaged. It may rightly be designated the standard, scientific, shell crown.

The plier crown in the hands of a proficient operator possesses all the advantages of a band and impression crown, except that the morsal

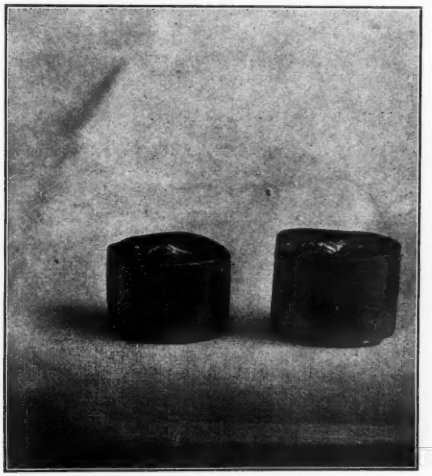


Fig. 2—a

surface may not be as lifelike. However, it is surprising the degree of accuracy the expert attains in reproducing the ridges, grooves, fissures, etc., of the biting surface with only a pair of contouring pliers. When finished, the crown differs from the band and impression crown in one respect—only the morsal surface is reproduced, the buccal and lingual portion of the cusps being contoured to form on the band. It has an advantage, then, in that the line of solder is confined strictly to the biting surface and not to the buccal or lingual edge of the band.

It is to facilitate the making of a more natural masticating surface that a system of dies and counter-dies is devised. Only seven different forms are necessary; one for the upper right and left, first and second bicuspids, and upper right molar; and upper left molar; a lower right and left, first and second bicuspid; a lower right, first molar; a lower left, first molar; and one for the lower right and left, second and third molars.

More would be useless, as may be observed in the perusal of the technique of making this crown. A brass ring with an inside ridge to receive the slot, which is milled in the dies and counter-dies, is provided (Fig. 2). Although the forms are case-hardened steel, the fine lines would soon become battered if the two ends did not meet in a correct apposition.

Fig. 1 indicates a buccolingual (*a*), and a mesiodistal (*b*) longitudinal section of an upper bicuspid die and counter-die. The average diameters are taken from Black's measurements of teeth, for example: the average mesiodistal diameter of the upper first bicuspid is given as 7.2 mm., and the buccolingual diameter 9.1 mm.; the same measurements for the second bicuspid are 6.8 mm. and 8.8 mm. respectively, leaving a

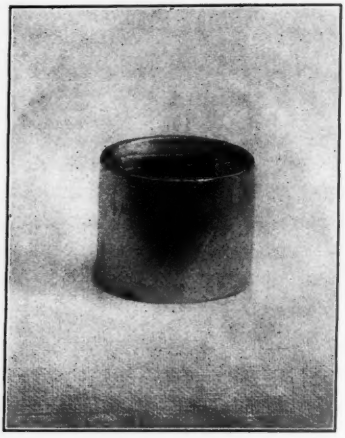


Fig. 2—b

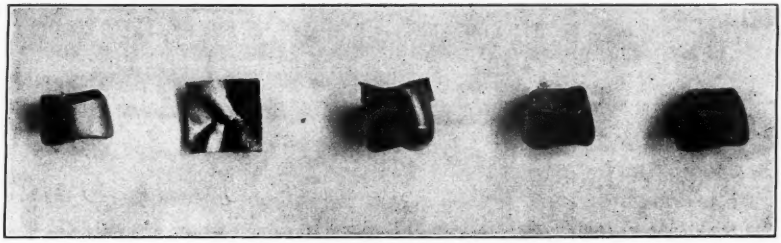
Fig. 2—c

general average of 7.0 mm. as the mesiodistal diameter of the two teeth and 8.9 mm. the buccolingual diameter. The sizes of the other teeth are computed in the same manner.

This method requires a minute knowledge of tooth anatomy and occlusion, and it is mandatory that much care be exercised. If the occlusal margin of the band is accidentally cut a little shy of gold, it cannot be restored as in the impression method without either making a new band or soldering on more plate. There is no more reason why this crown should be carelessly made because it is quick than that slovenly work be practised in the preparation of a gold inlay, for the reason that it is less laborious to insert than the gold foil filling. After much painstaking care in grinding the abutment to the correct trapezoidal form, the band is made and fitted in the usual way, except that it is cut wider to allow for the cusps. As has been told us by men of repute, the slight

contour at the gingival for the protection of the delicate free margin of the gums is most essential. Thirty-gauge, twenty-two karat, gold plate with the alloy mostly of silver to make it soft, is preferable for this work. it is highly desirable that the plate for the morsal surface be pliable to assist in securing a correct articulation.

Fig. 3 represents the successive stages in the making of this crown. The band is cut, after being fitted to the neck, so that the patient cannot quite close the mouth—about one millimeter too high all around. Then, it is contoured to proper form, making the buccal and lingual portion of the cusps. The important contact points with adjacent teeth must not be overlooked. Next, the margin of the band is ground with carborundum stones just barely to clear the opposing tooth when the mouth is closed and after the patient moves the jaws laterally. Obviously, the



a b c d e

Fig. 3

clearance should equal the thickness of thirty-gauge plate. Of course, an endeavor is to be made always to restore the natural beauty of the tooth without sacrificing its utility.

A die and counter-die with the ring are now brought into service, and the morsal surface is swaged; this is "tacked" on the band (Fig. 3, c), burnished all around to a tight joint, soldered to place with just enough solder to seal the joint, and the excess plate trimmed to the band (Fig. 3, d). The crown is now placed on the abutment, and the patient instructed to close hard and move the jaws laterally until the crown does not feel high. If there is any doubt about the morsal surface coming in contact at any point with the occluding tooth where it should, or if a piece of sheet wax indicates as much, the crown should be removed, filled with cotton, and pressed outward with an orange-wood stick. Another bite is secured. A liberal amount of solder is flowed into the crown for reinforcement to withstand the masticating trituration, and the cusps are rounded and contoured where necessary. The crown is then polished and ready to set.

MASTICATING EFFICIENCY IN NATURAL AND ARTIFICIAL TEETH

By Alfred Gysi, D.D.S., Zurich, Switzerland
Professor at the Dental School of the University of Zurich
AND
George Wood Clapp, D.D.S., New York

ARTICLE VII

THE FORMS OF ARTIFICIAL CUSPIDS

It has generally been impossible to articulate the artificial cuspids of the past without extensive grinding because they have been of the newly erupted, unworn forms. (July *Digest*, page 433.) The labial surfaces of the ordinary artificial cuspids have been so formed that the

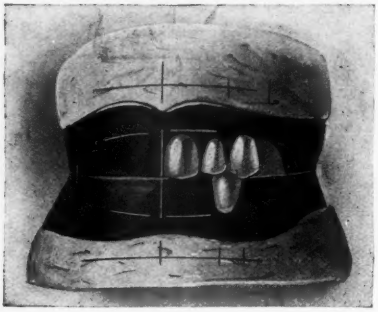


Fig. 47
Setting lower cuspids in right relations to upper cuspids and laterals

grinding mutilated them and caused the teeth to look unnatural. It has required much time and skill to grind opposing facets of proper sizes and inclinations on such cuspids.

In Trubyte cuspids Dr. Williams has overcome the defects of ordinary porcelain cuspids and has given us beautiful teeth with the cusps carried to correct locations, and with facets perfected as nearly as possible in manufacture. It should not be expected that the facets will be suited in every detail to any arrangement the dentist may give them, and he should expect to make the final adjustments according to the positions and inclinations he gives the teeth. But this finishing will be slight, and not at all like the grinding necessary on the old forms of cuspids.

ARRANGING THE ARTIFICIAL CUSPIDS

When the upper central, lateral, and cuspid of one side have been set, the lower cuspid should be set so that the labial margin of the mesial

facet occludes with the lingual margin of the narrow facet on the distal part of the upper lateral, and the labial margin of its distal facet with the lingual margin of the mesial facet of the upper cuspid, as shown in Fig. 47.

The lower cuspid is easily the most important lower anterior tooth, from the view point of articulation, since it is the lower tooth which takes the shock of closing. If it is set to the occlusion mentioned above and **to articulate with the upper teeth as will be described,** the lower den-

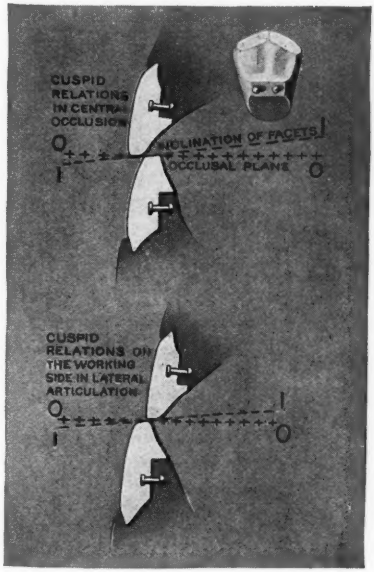

CUSPID RELATIONS IN CENTRAL OCCLUSION
INCLINATION OF FACETS
OCCLUSAL PLANE
CUSPID RELATIONS ON THE WORKING SIDE IN LATERAL ARTICULATION

Fig. 48.

ture is likely to be stable in position and the upper and lower incisors protected from breakage. If it is not set in this manner, the dentures may be tipped out of position or the anterior teeth unknowingly set too deep an overbite and broken by unrecognized contacts.

The correct position of the artificial cuspids is very important because it is probable that more dentures are dislodged by improper contacts here than at any other location. It is possible that the need for extensive grinding of the artificial molars in years past has been mostly due to the fact that the teeth were not arranged to come into proper contact at the cuspids.

If the upper and lower cuspids have been correctly placed, they will exhibit the relations shown in Fig. 48.

ADAPTING TO ARTICULATION

No dentist can set upper and lower cuspids to these relations in articulation unless he uses an articulator having a lateral movement of the artificial jaw, and preferably one in which the lateral movement centres on properly placed rotation points. The use of articulators in-

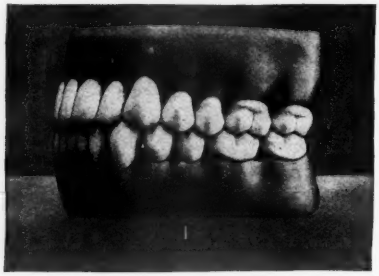


Fig. 49

In central occlusion, the lower cuspid should occlude with the distal facet on the edge of the upper lateral and the mesial facet on the upper cuspid, but the upper teeth must not hang down below the level of the lower cuspid. See also Fig. 48.

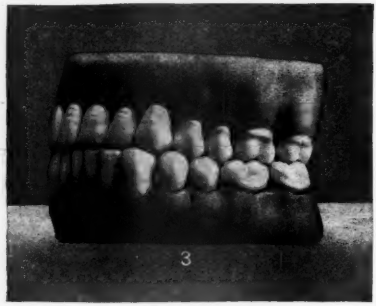


Fig. 50

In articulation, the lower cuspid on the working side must articulate with the same surface with which it occluded when at rest. If this relation is not attained, the strain of closure may come upon the upper anteriors, with resulting dislodgment of the dentures or breakage of the teeth. If the upper lateral is set too low, it will be broken during articulation.

capable of lateral movements, makes it impossible to judge the correct depth of overbite in the upper cuspids and laterals. The upper lateral and cuspid must not overhang the lower cuspid in such way that they exert undue pressure on the lower cuspid in articulation, since that will undoubtedly cause breakage of the teeth, owing to the amount of force exercised by the jaw.

The tip of the lower cuspid on the working side must pass through the interdental space between the upper lateral and cuspid. The tip of the upper cuspid must pass in the interdental space between the lower cuspid and first bicuspid. These points are emphasized here as of first importance. It seems impossible to make it sufficiently plain that one of these teeth must not "climb" upon another during articulation. The relations to be attained are shown in Fig. 49 and 50.

SUMMARY

The relations here outlined are very important and serve as bases for other functions of the cuspids to be described later, so that it will be well to summarize them for convenience in remembering.

The upper and lower natural teeth come into lateral occlusion first at the cuspids. This is probably true in artificial dentures in the mouth.

Correct relations of artificial upper and lower cuspids will go far to prevent dislodgment of the dentures. Incorrect relations are likely to dislodge dentures or break teeth.

The lower cuspids should occlude with the upper laterals and cuspids, and articulate with the same surfaces of the same teeth.

The upper laterals and cuspids must not overbite the lower cuspids to any greater extent than permits clearance in lateral movements. Too deep overbite here will insure dislodgment of dentures or breakage of teeth. Dentures should be examined for this relation before putting into the mouth, to detect changes occurring in vulcanizing.

The point of each cuspid must pass through the opposing interdental spaces.

These relations must be secured on an articulator capable of lateral movements of the artificial jaw.

(*This article is expected to be continued in the October number.*)

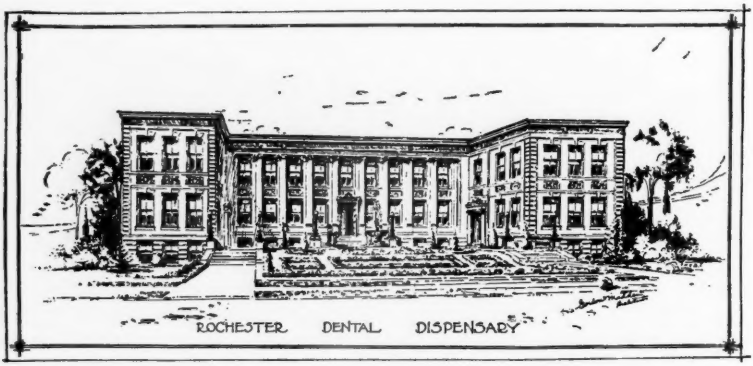
Editor DENTAL DIGEST:

I would like to have advice as to the following case. The patient is a man about forty years of age and in good health. He has all his teeth in his mouth except the two lower centrals which became loose and fell out. The other teeth have no cavities but are very loose, so much so that when he speaks you can see some of the teeth moving around. There is a chalky deposit on all the teeth. I carefully examined the teeth and gums and did not detect any pus. What course of treatment would you advise? R. I.

ROCHESTER'S NEW DENTAL INFIRMARY

MR. GEORGE EASTMAN'S LATEST GIFT

The city of Rochester is to have a great Dental Dispensary to be built and endowed by the head of the Eastman Kodak Co., Mr. George Eastman.



A site on East Main St., between Alexander and Prince Streets with a frontage of 180 feet and a depth of 200 feet, has been purchased. The building will be modelled along the same lines as the Forsyth Infirmary of Boston, and will be three stories in height and cost about $300,000, fully equipped. It will be provided with every convenience for advanced dental study, the furtherance of educational and research work and twenty chairs with competent operators. Provision will be made for performing all operations in oral surgery, and for surgical treatment of the nose and throat when the condition of those organs is associated with oral diseases. Orthodontic work will be a special feature.

A research laboratory, a radiographic laboratory, a lecture room and an amusement room are additional features. There will be regular courses of lectures for the members of the staff, and a training school for women who are preparing to take up prophylactic work.

And the whole institution will be for the special benefit of children.

The Rochester Dental Society has been a pioneer in this work in this country. The first dental dispensary in any school in the United States was established in No. 14 School, in that city. Since that time the work has been taken up in the schools of many other cities, appropriating varying amounts from public funds for maintenance. Certainly Rochester is taking its place as a pioneer in the advanced work of prevention which comes from a better understanding of the teeth and mouth.

The dedication of the Forsyth Dental Infirmary, the work of which so impressed Mr. Eastman, took place last November and marked an epoch in dental history. At that time Thomas Alexander Forsyth said:

"It has been my wish that the infirmary should be as a home to the children, beautiful and cheerful: a protector of their health, a refuge in their pain, thus by making them healthier and happier. I hope it may make them grow to be better citizens of our beloved Boston. If this is accomplished, as I believe it must be, with the coöperation of the dental profession, I shall feel that the gift has been well bestowed."

This is the idea that Mr. Eastman has in mind when he makes this gift to the children of Rochester, to the children who cannot meet the expense of expert dental work, many of whom suffer all through life because of neglect of their teeth.

Mr. Eastman's gifts for the establishment and maintenance of the Dental Dispensary will amount to $1,200,000, under the plan outlined. This will be the largest sum given by him for one purpose, and it will raise the total of his large gifts, so far as these are known, to about $3,500,000.

The principal facts of the gifts for the Dental Dispensary are as follows:

The dispensary will be built and equipped by Mr. Eastman at a cost of $250,000 to $300,000. The conditions are that the City provide at least $12,000 a year for five years to carry on the work in the schools. Private citizens are to contribute $10,000 a year for five years.

Mr. Eastman himself will contribute $30,000 a year for five years, and at the end of that period he promises to furnish an endowment of $750,000 if the conditions have been met and the work is going on satisfactorily.

"THE AMERICAN DENTIST"

We are in receipt of "The American Dentist" and we think it promises well. It is "an independent organ of news, opinions, and information devoted to the dental profession."

The staff is composed of Dr. George Wallace Winslow, Editor; R. A. Weston Arnold, Manager. Associate Editors: Dr. W. H. O. McGehee, Cincinnati; Dr. B. Holly Smith, Baltimore; Dr. C. E. Frazier, Kansas City, Mo.; Dr. Howard R. Raper, Indianapolis.

Success to "The American Dentist."

WILL THEY DO IT?

By Godfrey Knight, D.D.S., Sidney, Aust.

There is yet a zone of separation between dentistry and medicine. A sort of No man's land, even the top soil of which has so far, scarcely been scratched with the ploughshare of investigation.

Take the late gangrenous horrors of the wounds on the battlefields of Europe; by dabbing iodine on their surface, no germ is ever found in the vicinity.

The same disinfectant has been used by dentists for many years in septic sockets.

Disease as Pasteur first saw, will be prevented. Slowly but surely we are realizing that the few inches of the body, where the first microbes were found, is of immense importance and the greatest preventive insurance against attack will be taken there; so far the prophylaxis and hygiene thereof are woefully inadequate.

We have been obsessed by the difficulty when the answer has been in our hands, which like all great things is simple.

Reinfection has also dashed our hopes frequently, but the outstanding fact is that the invading forces of whatever nature, can be kept at bay by iodine.

First we must clear our battle ground of all the enemy's fortresses, i. e., cavities in the teeth, and stumps whose canals are putrefactive; we know how to do that.

Secondly. They have a powerful ally, pyorrhea. This also we now know how to tackle.

Lastly we have to keep vigilant, we wipe, spray or brush the teeth, gums, alveoli and throat with iodine tincture or better still we use an aqueous solution which does not destroy the friendly cells.

Iodine crystals	1	
Potass. Iodine	1	part
Water	100	parts

This will render the most septic mouth clean and it should be repeatedly applied when your patient is below par physically.

There is no possibility that any of the pathogenic microorganisms which use the mouth as a portal to enter the body, can do so if this aseptic condition is maintained.

Our greatest struggle lies in recognition, in being given a chance to effect this immense benefit toward the salvation of humanity from disease.

The way is long to that distant future when people will be fined, nay, even imprisoned, if they fail to have clean mouths and are suspected of being carriers of disease.

ARTIFICIAL VS. FALSE

By F. H. Brown, D.D.S., Lebanon, N. H.

Until the advent of the Face Bow and Anatomical Articulator every dentist in the world made "*false*" teeth. Never even by chance a truly anatomical denture for an edentulous mouth. No branch of dentistry has had the slights bordering on insult that Prosthetics has, and is, suffering to-day at the hands of ninety-eight per cent. of dentists throughout the world.

No other field in dentistry offers such an opportunity for advancement as prosthetics. The tendency of the younger generation to commercialize and get the almighty dollar quickly with the least possible effort is not only demoralizing prosthetics, but the individual as well. No man can retain his self-respect who will not give his very best service to the public, which has the right to expect and demand it. To deliberately adopt a low grade of service will constantly work deterioration of character in the man and rob him of the consciousness of having done his best, which in the long run is the true measure of happiness. The curse of prosthetics is, "A set of teeth by return mail." How can a dozen men make a denture with any sense of appropriateness for a person they have never seen? An artist may as well attempt a likeness by the same method. Advertisements read: "We will relieve you of the drudgery of your plate work, etc." If any part of a chosen vocation is "drudgery" to a man, that part is indelibly stamped a failure. No man can ever make a success of a line of work he hates or even dislikes. If we are not keenly interested in our work, we shut up shop mentally and refuse to think about our work; then we fail to put the art and skill of personality into it, and thus are handicapping our development.

Artificial dentures (with the emphasis on the first syllable) can be so easily made to-day by truly scientific methods, that there is no excuse for a conscientious man to surrender his individuality or neglect the greatest field for artistic and beneficent work in dentistry. The "transfer proposition" and use of anatomical articulator is simple and easy, consuming not over ten minutes' extra time, and the satisfaction to both dentist and patient derived, more than compensates for the time, besides the patient is sure to do much effective advertisement of the advance method.

My dear Brothers: get away from the ninety-eight per cent. wrong, and join the two per cent. minority, which you know is right.

HOW SHOULD DENTISTS ADVISE PEOPLE TO CLEAN THE TEETH?

By Bernard Feldman, D.D.S., Perth Amboy, N. J.

At the dedication exercises of the Evans Institute held this year in Philadelphia, clinics were given by several prominent men on various topics. One clinician expounded his views to the dentists surrounding him as to what he considered to be the right way for people to clean the teeth. He advocated the vigorous use of the tooth brush on the gums and teeth. At another chair, another clinician was very emphatically advising his hearers that the bristles of the brush should *not* touch the gum tissue, as such brushing action was decidedly injurious to the free margins and soft tissues. This was the sole reason for his clinic—to warn the dentist against advising his patient to use the bristles of the tooth brush on the gum tissue while cleaning the teeth. Standing nearby and listening intently was the writer, possessing just as sincere and honorable intentions to advise the best method of cleaning the teeth, and having even more radical views on this matter. These views were shortly afterward published in the March 1915 issue of *Oral Hygiene*—The Menace of the Tooth Brush, and reprinted partly in the *Literary Digest*, May 22.

The average person takes little if any care of his tooth brush; and it can be safely said that the brushes, as used by over ninety per cent. of the public, are filthy germ-carriers, which are doing more harm than good in preventing caries and pyorrhea. A close study of the matter will convince any impartial person (who is eager to see the truth, however unpleasantly it may affect a time-worn tradition as the brush has already become) that the brush does not reach the interproximal spaces to dislodge the food-remains efficiently; that it cannot be sterilized efficiently without ruining the bristles or handles; that it tears and scrubs the soft tissues of the mouth and that it is undesirable in principle to use the same kind of agent that is being used to clean floors and gutters, to clean the oral cavity. Of course the tooth-brush has smaller and finer bristles, and a handle to conform to the size and shape of the mouth; but the principle is identical in all brushes used for cleaning purposes.

It will be argued that there are any number of people who have taken care of their teeth using the tooth brush for scores of years, and that these teeth are good and healthy. There was a time when people would clean their rugs and carpets with the old-fashion broom, never realizing the wear-and-tear that was being caused by the bristles. Nevertheless, no one will deny that the vacuum cleaner of to-day will clean the dirt off the rug much more efficiently, with less wear-and-tear and less discomfort.

No one will take the stand that this decided improvement of the electric vacuum cleaner is to be frowned upon; yet there are many people who are still sweeping their rugs with the broom.

Any technique that had for its purpose the cleanliness of the oral cavity was a step in the right direction. But if an improved method can be devised and truthfully established, which will conform more closely to Nature's wishes of sanitation and health, then it is the duty of the dental profession to cast aside all traditions as to the gospel of the tooth brush, to forget that this universal custom has become so popular as to be considered almost gospel truth, and to turn instead, to this improved method of cleaning the oral cavity. There should be no let-up in drilling the children and educating the masses to the *right* methods of mouth hygiene; these efforts are certainly to be praised and assisted. But when children and masses are being taught a harmful habit, in the belief that it is oral prophylaxis, the writer says "Stop! Has this mistake not done enough harm? Why continue it, when an efficient method could be advised by an impartial commission of research workers who would investigate the subject?

"Let there be but one method of cleaning teeth which could be advocated uniformly by every dentist; but let that one way be a right way. If the tooth brush is really efficient, let the dentists of the world become teachers of tooth-brush drills; if the brush is proved to be harmful let this wild enthusiasm stop, and an attempt made to stem the tide and turn it the other way."

It has been squarely put up to the dental profession, "Will it take the next step in civilization," by effectively taking care of the mouth. The nose and pharynx are comparatively sterile; the nose, in fact is a protection against infection. It can be safely inferred that the mouth is the greater culture ground for all sorts and varieties of germs, it naturally follows that the cleaning of this focus becomes the greater factor in the problem of disease prevention. Preventive medicine will find in mouth cleanliness the greatest weapon with which to stem the ravages of disease for future humanity. It is therefore, a source of regret that dentists should be divided over this important question, resulting in conflicting ideas being presented to the public, in the dentists' sincere and earnest desire to render the best dental service. It is also regretted that a research commission has not been appointed to settle the question, "What is real mouth hygiene?" Thus far, the public has been "educated" by full-page advertisements to believe that Chewing Gum, lozenges, oxygen powders, tooth brushes, etc., are "good for the teeth." The great influence which this heavy advertising campaign has wielded upon the public mind can only be guessed at.

Being intensely interested in this subject, the writer has carefully investigated the entire field, and has been astonished that so many apparently obvious things are being overlooked in mouth hygiene. The question of dentifrices and mouth washes has not been given the serious consideration it deserves; what little research work has been done in this matter being given little if any heed. The importance of diet as a prophylactic agent has never been seriously considered. The matter of fruit-juices, vinegar washes and acid powders surely deserve closer study than has been given them. The tooth-brush use is not the only custom that is so universally popular and so undeniably harmful. For instance, it has occurred to many people that antiseptic mouth preparations are too strong and irritating to the soft tissues of the mouth. Doctor Ebersole, the Father of the mouth hygiene movement of this country, said in a personal communication, "I am unqualifiedly opposed to the use of antiseptics and disinfectants in the mouth, because of the fact that these agents attack the superficial cells, the soft tissues of the mouth, more readily than they attack and destroy the disease producing germs. Therefore, a mouth wash or dentifrice and the method employed in using the same can only be effective in proportion to its ability to loosen up and wash out the disease producing germs and débris found in the mouth."

Doctor McGhee of Cincinnati experimented with the more popular dentifrices that are on the American market. He found that almost without exception, the coloring matter (which was added for no medicinal value, but to promote a ready sale), had a decided tendency to discolor the teeth. Cracks in the enamel and cavities of decay furnished the avenues of entrance for stains of all kinds to penetrate the enamel, in spite of the dense structure and the little chemical affinity which enamel has for other substances. These research findings are important; nevertheless, little mention has been made by writers and lecturers, condemning the practice of people using colored dentifrices to clean their teeth with. These dentifrices depend for their efficiency, upon a strong antiseptic drug to attack the germs and food débris to thus obtain mouth cleanliness. It is ridiculous to expect that this chemical reaction will prove beneficial to the tissues. Firstly, it is very irritating to the cells of the mucous membrane of the mouth, and instead of assisting them to a healthy growth, there is a degeneration of the cells which leads to their death. Secondly, the only way to remove food débris is to do it mechanically by means of the silk floss or a metal strip or a piece of cotton gauze.

The writer maintains that the nearer Nature's wishes are approached, the sooner will her processes of health and repair be solved. The mouth is peculiarly adapted to receive and to hold germs and food débris. The thirty-two teeth, their tooth-sockets, the interproximal spaces, the tonsils,

the faulty fillings and dentures, the tongue, etc., offer avenues of infection from the mouth to the general system. To clean this big focus in the way that will conform closest to Nature's wishes, the problem must therefore be studied systematically with the idea of cleaning these various avenues of infections. The writer wishes to submit his six principles of mouth hygiene, which constitute a rational routine to obtain mouth cleanliness.

(1) Taking care of what one eats, and how one eats it.

(2) Removing mechanically all food deposits.

(3) Keeping the surfaces of the teeth polished; dental service must be sanitary.

(4) Gently massaging the gums and outer surfaces of the teeth.

(5) Carefully washing the mouth with a mild saline solution or plain water.

(6) Regular prophylactic service by the dentist.

The greatest factor is the mechanical removal of food débris between the interproximal spaces without hurting the gum tissues, This object can be best obtained by the dental silk floss or metal strip or a strong liquid spray. To subject the mouth daily to strong drugs, when the very cause of tooth-decay, i. e.; food débris, is allowed to remain, is retarding Nature's processes instead of healing them. Healthy tissue requires gentle massage and careful cleansing; the massaging adds tone to the gums by creating antibodies to diseases, and the cleansing with a mild restorative will thereupon keep the mouth clean and wholesome. It is true that bacteria play an important part in the process of tooth-decay; but their action is secondary. "Remove all deposits, and there is no pabulum for the bacteria to thrive upon; keep the interproximal spaces and outer surfaces of teeth polished, and they cannot obtain their initial hold on the tooth."

The dental floss must be intelligently used, as it may harm the gums. Doctor Ebersole says, "my faith in the use of the floss, has been so thoroughly shaken that I hesitate to give a demonstration of how the floss should be used. Some of us have been investigating the matter thoroughly and have been convinced of the inadvisability of placing the floss in the hands of the general public." Although the writer hesitates to take such a radical stand, he prefers the metal strip as the agent par excellence to polish the interproximal spaces. Care must, of course, be taken not to injure the gum tissue. Dr. G. V. Black claims that a mouth can be effectually cleansed with a spray of normal saline solution. Any colorless and weak solution that will promote a healthy flow of saliva will be found to have a healthy effect upon the tissues. Plain water seems to be Nature's own mouth wash to clean the mouth. It is self-evident that regular prophylactic service by a dentist must be given, to make certain

that slight abnormal conditions are prevented from causing further serious harm.

Concluding, in plain words, the following is the method by which the writer advises the public to keep the teeth clean:—Exercise the teeth by eating the right kind of food in the proper way. The savage, it has been claimed, owed his splendid denture to his diet. After each meal, but most particularly before going to bed, one should try to remove the food remains in a rough way by washing the mouth with plain water, playing the lips and the cheeks upon the tooth-surfaces, finally gargling the water. The remainder of the food is then mechanically removed by passing silk floss or preferably a thin strip of thin metal between the teeth, to clean the interproximal spaces. The clean forefinger is then covered slightly by a piece of cotton gauze or rubber, and the outer surfaces are "dry rubbed" to remove all stains of deposits, that may be attached near the gum margins. The clean forefinger can then be used to massage the tissues with a colorless and weak dentifrice, one that will not discolor the teeth or prove too irritating to the tissues. The clean forefinger thus becomes Nature's own tooth brush, which "just fits the bill." The excess antiseptic is then washed out with plain water, or a weak saline solution. A spraying device is also beneficial. The dentifrice advocated by the National Mouth Hygiene Association, called Mogene, has been carefully compounded and should be recommended by the dentists for the double purpose of giving the patient the very best dentifrice, and secondly, for supporting the educational features of the Association from the revenue derived through the sale. Regular prophylactic service, which will include good sane advice as to healthy habits, is essential. Anything that will tend to make the blood richer or that will add tone and vitality to the body will have a tendency to make even the teeth sparkle with the glow of good health. The person with the "mouth beautiful" gradually acquires a vital resistance that is a great factor in the maintenance of his good health.

EFFICIENCY

By P. Neff Myers, D.D.S., Pittsburgh, Pa.

Some one has said, How much do you see? Ruskin supplies the answer as follows:—"For every one hundred men that hear but one can speak, for every one hundred men that can speak but one can think, for every one hundred men who can think but one can both look and see." The average man can develop no more important faculty, than that of seeing things, and realizing what they mean. One great requisite is to

have selfconfidence. Have faith in oneself and others. Confidence in others and loyalty to others make organization perfect. Christ was a past master in organization, and the faith of his advance agents was all any one could wish for. They believed in doing the right thing, right now, in the right spirit. There is gunpowder in every man, the problem is to get the spark where it will ignite. I trust that the spark may reach the gunpowder in some of you, then I will consider myself well repaid for my labors in writing this paper.

My object is to help every dentist to increase his efficiency so that he may make greater returns on his time and do it with less labor. This may be accomplished by organization of one's office force. There is no reason why a dental office should not be organized as in all other lines. A thirty dollar a day man that will do the work of a two dollar a day assistant is not practising thrift, but is penny wise and pound foolish.

The business man, physician, and attorney, all have assistants, and they assume no small amount of responsibility.

A bright and willing girl can be trained to do at least one half the work that the average dentist tries to do himself. First of all, the dentist must be broad enough to realize that the time spent in training an assistant will soon return four-fold. Second, the girl must be of high type, good character, good appearance, with as much education as possible, and one at least that can use good language, be neat, know her place and be ever faithful to her duty. I know several men in our line and about all their assistants do, is to receive patients in the reception room, and run part of the errands to the supply house. Not much thrift, to my way of thinking. As a rule one may secure the right kind of a girl, by asking patients to refer some girl of their acquaintance.

The right kind of a girl will add to your office in many ways. A girl with a ravelled, dirty petticoat below her skirt, a disconnected waist and skirt, tossed hair and chewing gum, should never be allowed around. The presence of a third party has a tendency to raise the moral standard of the office. Where there is meeting of all kinds of people and people are meeting all kinds of dentists, there should be a protection on both sides of the problem.

An assistant should have tact, and know how to receive all classes of patients, to be able to soothe the complaining one and to silence in a graceful manner where complaints may be made before other patients.

The assistant should never join the conversation between the patient and the dentist. The dentist should always guard against using a general conversation, where the assistant could or would be brought into same. I am in favor of white as a uniform for an assistant; it has a refreshing look that nothing else has.

Men to succeed in any line must have system or organization. Every one connected with the office should have his work to do, and do it. Men do not accomplish more, because they do not attempt more.

To arrive at just how much time my assistant saved me I made a chart of the many duties performed by her. First of all, each duty was timed for several days, thereby arriving at just how much time was consumed in each task. That was the hardest task to get a line on, for, when the timing was going on the assistant ran on high speed. After arriving at the time, and the chart arranged, all that was necessary to do was to tally. We took a record for one week, and I assure you that there were a great many duties of which we could not keep a record.

The following items are some of the duties my assistant has to do, thereby saving me thirty-one hours and sixteen minutes per week, or more than half my time. Sterilizing, warm water, mixing alloy, mixing cement, investing and casting inlays, answering phone, attending reception and dressing room, writing receipts and letters, making deposits in the bank, arranging instruments on laboratory bench for different classes of work, getting Supplee outfit ready, also plaster for impressions, wax for bite, pouring models and separating same, ordering supplies, keeping record and stock of same, bringing patients into operating room, seating them and placing on towels, getting the prophylactic outfit ready, also the Fisher outfit, marking up the chart as I call off the work done at each sitting, making out statements, keeping books, and making appointments.

Below is a report of one week's work; 525 tasks, divided as follows.

Patients handled	60	5 hours
Warm water	72	54 minutes
Mixing alloy	12	72 minutes
Mixing cement	20	30 minutes
Investing and casting	13	13 hours
Phone	29	29 minutes
Reception room	100	100 minutes
Patients' wraps	45	90 minutes
Receipts	16	32 minutes
Bank Deposits	6	60 minutes
Laboratory, for crowns	3	36 minutes
Cup of water	60	30 minutes
Wax for inlay	13	13 minutes
Hypo, Novocain	3	15 minutes
Prophylactic outfit	6	18 minutes
Merking charts	60	120 minutes
Saliva Ejector	5	8 minutes
Mixing Synthetic	7	14 minutes
Polish crowns and bridges	3	80 minutes
Ordering supplies	3	6 minutes
Total	525	31 hrs. 16 minutes

If a dentist, who is working his head off, doing from five to six thousand dollars per year, will adopt a system such as has been outlined, he can double his income, not increase his fees, and not work any harder.

DR. WILLIAMS' LATEST CONTRIBUTION*

Every practitioner of dentistry, who has not excluded prosthetic dentistry from his field of activity, has had to contend time and again with the difficulties attending the selection of artificial teeth. There has been heretofore a drought of logically arranged information bearing upon the subject, and furthermore the dentist if endowed with any appreciation of the artistic requirements that should be fulfilled by an artificial denture, in most cases has found it impossible to obtain the forms of teeth that would best answer the purpose from the standpoint of both physiologic efficiency and natural appearance.

The rules that have been handed down for several decades and which have been recorded in text-books upon the subject, have given rise to as much confusion as the finished products have to dissatisfaction on the part of both patient and operator. It has been the aim, apparently, to build artificial dentures with teeth selected with the view of satisfying some of the most essential mechanical requisites to be fulfilled by this kind of prosthetic appliances. The artistic phase of the problem has been the bugbear of the work because even though we may have realized the type of tooth required for a particular case, it has been impossible to obtain it from the sources available to the profession.

The artistic phase of the work, and here we have reference to artificial substitutes which will embody in addition to the qualities which will render possible the duplication of physiological function, such physical characteristics as to result in an ensemble in harmony with featural environment, has not been overlooked, but of necessity has had to be slighted.

Realizing the insufficiency of information in this field, one of the greatest importance to the advancement of prosthetic dentistry, it is with gratification that we welcome the contributions upon the subject from the pen of so authoritative a writer as J. Leon Williams.

We have spent days carefully perusing from every important angle the logical analysis which he has made of the question and have reached the conclusion that the benefit to be reaped by the profession, once its significance is generally understood, will surpass any previous discovery or invention in this particular field.

The importance of constructing artificial dentures upon a logical basis and with a correct conception of the principles underlying the selection of artificial teeth, is more apparent now than at any time in the immediate past. We are just beginning to appreciate the truisms that the

* Editorial from *The Pacific Dental Gazette.*

covering of tooth crown with a gold shell to act as a bridge abutment or the devitalization of a tooth, marks tragic epochs in man's life. Just in proportion as crown and bridge work was lauded in years past, and still is at the present time in some quarters, as the ideal method of dental substitution, just in that proportion must it be condemned to-day as a prolific source of systemic and local disturbances of degrees of severity impossible to appreciate, unless we are willing to avail ourselves of the diagnostic possibilities of bacteriology and radiology. Crown and bridge work is being made to relinquish the high place it has most unwarrantedly occupied in the field of prosthesis in favor of the full or partial denture, the least dangerous to the general health of the patient and the most satisfactory form of dental prosthesis if constructed upon the scientific principles which have been given to the profession by men whose names should be household words wherever dentistry is practised.

Doctor Williams has studied the subject of selection of artificial teeth with the view of making possible the construction of dentures fulfilling every physiologic and artistic desideratum. His work is based on the fact "that while art work must be founded on the most intimate, penetrating and thorough study of Nature, that it may be true to life, yet truth to life means much more than an indiscriminate consideration and acceptance of a mere matter of facts. It means the appreciation and understanding of the relative value of facts, and the power or faculty of discriminating between what is of small value and what is important, characteristic, relevant, fine, all that is really vital to the subject."

In enunciating the principle credited to Millais that a thing is beautiful in proportion as it harmonizes with its environment and devising along this line teeth of an outline form in harmony with facial outline, he has by this relatively simple method made possible the selection of teeth for each case upon a basis at once ideal and practical.

The keynote of the outline forms suggested by Doctor Williams is to be found in their harmonization with the featural characteristics of the three well-marked classes or types of faces, the square, the oval, and the tapering and with the fourth type of face, the "ovoid" of his classification. Teeth selected for these cases on the Williams' plan must and do exemplify certain laws of harmony either along lines of parallelism of tooth outline to face outline or upon the basis of the harmonious opposition of lines. Thus for a square face, a square tooth; for an oval face, an oval tooth; for an ovoid face, an ovoid tooth; for a face tapering toward the chin a tooth tapering toward the neck, the latter class typifying the perfect harmonious results obtainable by the application of the principle of line opposition.

Doctor Williams has endeavored to clear this department of prosthesis

of the indefiniteness and confusion which has characterized it ever since Dubois de Chemant injected droplets of new blood into the restorative phase of dentistry by his discovery of "the incorruptible teeth of mineral paste."

The work undertaken in the spirit of the seeker for truth, free from influencing prejudices, and carried through with that accuracy of detail so characteristic of the author, broadens the horizon of prosthetic dentistry and enlarges the range of applicability of plate work, thus making possible dental restorations that will not jeopardize the life of the wearer or decrease his physical and mental efficiency.

The vagueness and confusion of the past have been substituted by definiteness and clearness and the principles upon which the new system has been erected are as simple as they are sound and productive of artistic ensemble.

August, 1915.

Editor DENTAL DIGEST:

In the July number of the DIGEST, page 453, our attention was called to two questions and answers to same, relative to casting and making of aluminum plates. For the benefit of the dentists working aluminum, we wish to throw out a prompter or two for consideration.

From our office we have sent out over 550 aluminum plates and have had excellent success.

First to be successful, wax up plate (not thick) having good retaining lips on mesial, distal, buccal and lingual sides with five small lugs, two on sides and one in front. Be sure they are in a position not to interfere with setting up the teeth. Three sprues is enough, one each from heel of plate, the other from centre and about the size of an excavator handle. This method is practical with the "Wood Machine," which we have found to be the best.

If lugs are not used, be sure to pick up nicks on ridge of plate between lips for retainers. We advise aluminum plates, as we have never known of any disintegration, neither have we known of any separating of rubber from the aluminum, if the rubber was finished down close to the retaining lips. We believe that if there has been found a separating of rubber from the plates, it has been found on swaged plates, but not cast plates.

Lewiston, Maine.

A. MACOUS.

FIRST ANNUAL REPORT OF THE DENTAL COMMITTEE OF THE BRIDGEPORT (CT.) BOARD OF HEALTH

TO THE BRIDGEPORT BOARD OF HEALTH:

GENTLEMEN:

On May 1st, a report was rendered you of our work from September, 1914, to April 1, 1915, which was the end of the financial year. We now submit an annual report which gives in some detail the work for the entire school year.

The dental corps working in the schools, as you know, comprised eight women prophylactic operators and two women supervisors. The latter part of the second week in April a ninth woman operator was added to the number.

The total number of individual children given prophylactic treatments was 6,768. The number given one treatment was 1,872, the number given two treatments, 2,116 and the number given three or more treatments, 2,780. The total number of prophylactic treatments given was 14,340.

The supervisors gave tooth brush drills from October to June 20th, to 12,546 children.

Stereopticon lectures were given by Drs. R. H. W. Strang and A. C. Fones to 7,447 children.

Ninety-seven individual children who were too poor to pay for dental services were relieved from toothache by Dr. Henry S. Riddell. The operations performed were as follows:

Extractions	142	teeth
Treatments	11	"
Root fillings	9	"
Cement fillings	21	"
Amalgam fillings	1	"

The total cost of this service amounted to $100.50.

We appreciate that it is difficult to show at the end of the first year anything of great interest regarding our work as it will take time to make pronounced comparisons, yet a study of the following tables, especially of the last one where a comparison can be shown, will prove that there is every promise of this service and education being of great value to the children of our city. The following table gives the details of our findings of the 6,768 children on the first examination of their mouths.

STATE OF TEETH			COLOR OF GUMS			FISTULAS SHOWING ABSCESSED TEETH	CASES OF MALOCCLUSION
CLEAN	FAIR	DIRTY	DARK RED	LIGHT RED	PINK		
401	2647	3720	1573	4731	464	691	6077

THE USE OF THE TOOTH BRUSH			CAVITIES	
DAILY	OCCASIONALLY	NOT USED	IN TEMPORARY TEETH	IN PERMANENT TEETH
653	2149	3966	36700	4555

The following table is of more interest as it shows a comparison of the mouths of the 2,780 children who have had three or more prophylactic treatments during the year.

Totals of First and Last Examinations of Children Receiving Three or More Prophylactic Treatments during the Year.

STATE OF TEETH						COLOR OF GUMS					
FIRST EXAMINATION			LAST EXAMINATION			FIRST EXAMINATION			LAST EXAMINATION		
CLEAN	FAIR	DIRTY	CLEAN	FAIR	DIRTY	DARK RED	LIGHT RED	PINK	DARK RED	LIGHT RED	PINK
186	1067	1527	873	1769	143	647	1897	236	273	1981	526

FISTULAS		MALOCCLUSION
FIRST EXAMINATION	LAST EXAMINATION	
317	336	2494

USE OF TOOTH BRUSH

FIRST EXAMINATION			LAST EXAMINATION		
DAILY	OCCASIONALLY	NOT USED	DAILY	OCCASIONALLY	NOT USED
252	696	1832	763	1831	186

CAVITIES				INCREASED NUMBER OF CAVITIES	
FIRST EXAMINATION		LAST EXAMINATION		TEMPORARY TEETH	PERMANENT TEETH
TEMPORARY TEETH	PERMANENT TEETH	TEMPORARY TEETH	PERMANENT TEETH	1623	499
15547	1027	17170	1526		

It will be noted that the increase of cavities in the teeth during the year has been considerably less than one cavity per child. When we consider how easily a decayed tooth will incite decay in a neighboring tooth, we feel that this increase is comparatively small. A large number of the children developed no new cavities.

A number of the teachers have informed us that it is the first year that they have not had a large number of absentees on account of toothache. As time goes on we believe that the physical condition of the children will be much improved and infectious diseases much lessened with clean mouths and sound teeth.

The most important product of our city, barring none, is children. A close study of the first table will convince us that there is much to be done if we would hope to secure health and efficiency for the coming generation.

Respectfully submitted,

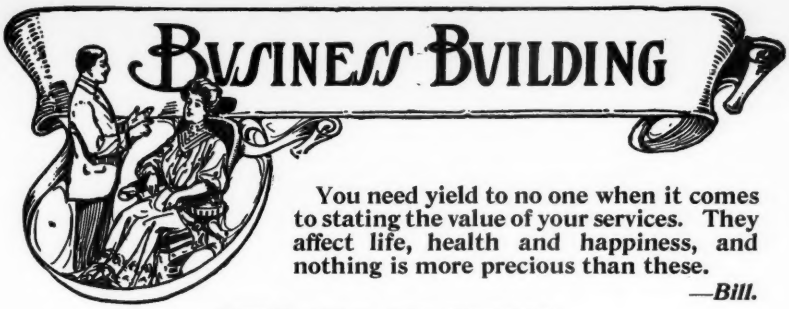
F. W. Stevens, M.D.
R. H. W. Strang, M.D., D.D.S.
T. A. Ganung, D.D.S.
W. J. McLaughlin, D.D.S.
A. C. Fones, D.D.S., Chairman.

July 1, 1915.

INLAYS BY THE INDIRECT METHOD

By T. A. Leach, D.D.S., Emporia, Kansas

In making inlays by the indirect method, I find that I can get much better margins by swaging into my copper amalgam cast a piece of 24K. 38 gauge gold plate and trim, leaving it slightly over-lapping, to the margins of the cavity in the cast. After trimming swage again, then build up with inlay wax to the desired contour; remove wax and gold matrix in situ and invest as usual. After the wax is burned out of the mould, cast the gold into the gold matrix almost boiling hot and it will fuse to the matrix. Now replace it in the amalgam cast, and swage it again and dress down to the margins and polish. After the inlay is seated into the cavity in the tooth you have a margin that cannot be distinguished from a perfectly malleted gold foil filling. Another advantage in this method is that fact that you have pure soft gold in contact with the enamel of the tooth and can be easily burnished while harder alloyed gold can be used for the occlusal and contact portions of the inlay. I also find that the cervical margins of the inlay, made by the above method, are as beautiful as any other margin of the inlay.



You need yield to no one when it comes to stating the value of your services. They affect life, health and happiness, and nothing is more precious than these.

—Bill.

WHAT AM I, MR. EDITOR?

Can you answer *all* of this dentist's question?—EDITOR.

I am eager to know just why advertising a man's profession via printers' ink is looked upon as so much of a disgrace.

I have in my located community 11 dentists of which 9 are considered ethical (state society says so) and declared fit. Three of these 9 are good square dentists but 6 of them I consider careless and poor excuses. So much so that I would not allow their class of work to go out of my office. I am too particular.

Their crowns are *cans*, straight up and down, a little dent somewhere on top for cusp. They never place matrix to build out contact and they attach bridges to anything, loose or tight, just so long as it stays in till they get their money. Some of them don't scale teeth (takes off enamel). Now the state society don't pay so much attention to that! They claim these men fit and give them membership to society because of one reason—they don't use printers' ink. (I guess!)

I can't see where printers' ink is as much of a disgrace as these men are to the community, practising dentistry for the people as they do.

I can't see where I am so much a disgrace practising good square particular dentistry and use printers' ink.

I keep up to the latest methods, receive five dental journals and read them. I practise for each patient as I would for my own mother. I am conducting the most modern and the finest office in our community. I am located in best office building and pay the highest rent here. I am doing a much larger business than 9 out of the 12 here, and you may say, why do I advertise? Because I am only six months located here and it is giving me the practice so I can pay cash for groceries; pay cash to my tailor; pay the supply man, and let my wife and family enjoy a few privileges and have things like the rest of people. I'll quit advertising when I get real busy and people are coming. But I desire to be employed during all of my office hours. You know a good many dentists are not as busy as they think they are and so Mr. Editor I say —I am ethical because I am on the square; I deliver the goods—but I am not ethical because I use printers' ink.

A. A.

A COLLECTION METHOD

By W. H. C., Elkhart, Ind.

One of the greatest problems of the dentist is the collection of accounts past due. Many agencies have been organized and various schemes devised to assist in the task. Many of these systems have succeeded in collecting money from the dentist if not from the slow debtor.

The great drawback to most collection schemes is that they depend entirely on an effort to scare the debtor, instead of appealing to the various reasons that induce men to pay up. Fewer and fewer men can be scared by collection agency methods.

Courtesy and persistency are the greatest factors in successful collecting. The following letters have proven very efficient where used. They have been suggested by an attorney and credit man of several years' experience.

THE FIRST LETTER

In looking over my ledger to-day I find a balance of $..... against you running back to .....

Will you kindly mail me your check for this amount, or advise me at once if you find the balance incorrect.

Thanking you in advance, I remain

Yours truly,

THE SECOND LETTER

I wrote you ..... regarding a balance of $....., but so far have not heard from you.

Please write me at once, so that I will know whether you consider the balance correct, and when I may expect your remittance.

Yours very truly,

THE THIRD LETTER

My letters of ..... and ..... regarding a balance of $.... on your account remain unanswered.

It certainly seems to me that you might at least grant me the courtesy of an answer, even if you are unable to make a remittance at this time.

Kindly favor me in this regard and oblige,

Yours very truly,

THE FOURTH LETTER

I am much surprised at your failure to answer any of my letters regarding your account. My letters certainly have been courteous, and I have made no threats of any kind.

You know of course, that unless I hear from you I will be compelled to use other means of collection which I very much dislike to do.

It will save both of us useless expense and annoyance if you will write at once, stating just what you propose to do.

I will hold this account on my desk until the morning of ..... and will depend upon hearing from you by that time.

Yours very truly,

THE FIFTH LETTER

As I did not hear from you this morning I had fully decided to take other steps to enforce payment.

However, a businessman advises me that he believes you to be entirely prompt and reliable, and I have decided to wait a few days longer.

You must certainly realize that your credit standing depends on your fair dealing, and fair dealing certainly requires you to answer my letters.

In view of the statement referred to above, I shall expect to hear from you by return mail.

Yours very truly,

(POSTAL CARD FORM)

I wrote you....., and no reply. Why? It is important that I hear from you at once.

Yours truly,

The letters should be sent weekly and the cards every other day for twenty days after the last letter, allowing two days for answering letter five.

The first three letters constitute the opening ones, and the fourth takes the place of the usual "threat to sue" letter, but leaves the matter entirely open so you can go after him in a different way.

The fifth letter takes the place of the "threat to list" letter, so that other business men will know of his indebtedness to you and refuse credit.

If the last letter does not bring results then start the cards. The first one or two cards will be, in all probability, thrown in the waste bas-

ket, but the fifth or sixth will get on the debtor's nerves and he will answer to stop them coming as he does not know of the twenty day limit.

Then when he comes in tell him that the reason you sent the cards was because you thought some one else must be getting the letters instead of him as you were sure he would answer them if they were received.

These letters are not "dead beat" proof, but are said to produce as good results as most collection systems costing more money. They were taken from a business magazine, and the writer suggests that they be tried to discover their usefulness.

FIRST ANNUAL "CHICKENIC" OF WEST CENTRAL DENTAL SOCIETY

W. La Fayette, Ind.
7-1-15

Dear Doctor Clapp:

With my grip packed ready to start for the extreme northern part of Wisconsin for the "Muskies" (and any other fish that will find their way to my net) I wish to congratulate you on the June Digest. Will try to have an article for your next year's Vacation number.

Enclosed find a programme of yesterday's meeting. "M." H. of Indianapolis, said to send you the enclosure and that he wished you could have been "among those present" as he will never forget the day as long as he lives.

While our programme states the *First* annual meeting, it means since organizing as a component society of the I. S. D. A., for our local society has had the habit of pulling off these get-together chicken feeds for the last eight years. The bunch swells each year as all the fellows are "repeaters."

I wish you a good vacation this summer—whatever form it may be—for you are entitled to a good one and it's up to you to "collect."

Fraternally yours,
W. S. Walters.

PROGRAMME CONTINUOUS CLINICS
WEDNESDAY, JUNE 30, 1915

1. "Conductive Chickenesia," Dr. H. Gochenour.
2. "Impression Treys Sympathetic Chickolin," Dr. L. M. Childers.
3. "Chicken Gizzard Inlay; Indirect Method," Dr. H. W. Legalley.
4. "Chicken Liver Inlay: Direct Method," Dr. Geo. Bell.
5. "Sweating, Stretching and Contouring a Chicken Neck," Dr. E. L. Friel.

6. "Full Upper Impression Using Mashed Potatoes," DR. D. C. BARNHILL.
7. "Endomeba-Chickencillis, How to Kill Them," DR. W. E. WALKER.
8. "Chicken Head Excision Using Hatchet Excavator," DR. C. T. MESSNER.
9. "Eating Peas With a Walters Inlay Holder," DR. W. S. WALTERS.
10. "Removing Impacted Chicken Breast Using Nitrous Oxid and Wabash River Water," DR. M. E. LEGALLEY.
11. "Scientific Research in a Bowl of Chicken Gravy," DR. J. C. SCHEMERHORN.
12. "Handling Chicken in a Business Like Way," M. W. HERRIOTT.
13. "Good Teeth, Good Health, Good Chicken," DR. R. R. GILLIS.
14. "Removable Chickenwork," DR. W. CLARK.
15. "Using a Chicken Thigh as a Mouth-Prop," DR. R. NEWHOUSE.
16. "Chickenmores Attachments Used in Continuous Eating," DR. GEO. H. MOORE.
17. "Instrument for Making a Groove Around a Chicken Wing," DR. E. E. FOLLETT
18. "Swaging a Chicken Thigh Into Place," DR. J. W. RHOADES (Dusty)
19. "Orthodontia—Regulating a Chicken Neck," DR. E. E. WILLIAMS.
20. "Cleft Palate Closure Using Chicken Back," DR. A. R. ROSS.
21. "Paste of Potato and Chicken Gravy to Stop Excessive Flow of Saliva," DR. H. R. PETERS.
22. "Using Tomatoes as a Sedative," DR. L. M. ELLIS.
23. "Introducing Chicken Gravy Into the Mouth Using Jiffy Tube," DR. F. H. WILLIAMS.
24. "Removing 42 Chickens from a Farmer's 'Hennery' Using Hot Air and B. S.," DR. C. P. SHEWEY.
25. "Filling the Oesophagus Using Both Mallet and Hand Pressure," DR. E. V. BURT.
26. "Tail Feather Used in Applying Martin's Chickenorrhea Remedy to the Gums," DR. G. B. MARTIN.
27. "Method of Restoring Badly Broken Down Chicken Backs," DR. C. G. ROSS.
28. Chickenography Demonstration," DR. H. RAPER.
29. "Making Good Saliva Ejector from a Chicken Neck," DR. C. N. WILSON.
30. "Oral Chickenlaxis," DR. G. A. FOLLETT.
31. "Tantalum Instruments in Packing Away Chicken Giblets," DR. F. B. MCADAMS.
32. "I Would for a Chicken," DR. O. R. O'HARA.

UNSTERILIZED INSTRUMENTS CAUSE DAMAGE SUIT

(*Massachusetts*) The Massachusetts Supreme Court recently affirmed the Superior Court of Suffolk County in awarding Milvina Drakes a judgment against George L. Tullock, a dentist for employing unsterilized instruments in operating upon her.

The action was to recover damages for the alleged negligence of the defendant. The plaintiff went to the defendant's office in January and February, 1910, and there had some dental work done by the assistants of the defendant. The evidence tended to show that the plaintiff's last visit to the defendant's office was on the morning of February 7, 1910, on which date a gold crown was fitted for her by Doctor Webber, an employee of the defendant; that in fitting the crown an instrument was used which cut her gum so that it bled, and about three weeks afterward sores appeared in her mouth, one of them being at the point where the gum was cut. There was evidence from which it could have been found that she was then suffering from syphilis, a contagious disease, and that this disease can be communicated in various ways, including infection by the use of dental instruments, if there is syphilitic virus on the instruments and it comes in contact with any cut in the mouth or other part of the body.

The undisputed evidence showed that it was the practice among dentists to sterilize their instruments by boiling, or by other ways, before they are used.

The jury, in answer to special questions submitted to them, found that Doctor Webber was in the defendant's employ in February, 1910, and that the plaintiff was infected with syphilis through the negligence of some person employed by the defendant, whose duty it was to clean and sterilize Doctor Webber's dental instruments during the night.

There was evidence that the plaintiff had been free from this disease before her visits to the defendant's office, and that she became infected by reason of the operation on her teeth.

The defendant offered evidence that it was his practice to have the instruments used in his office sterilized by boiling and in other ways, it does not appear what, if anything, had been done to sterilize the instruments immediately before the morning of February 7, 1910.

The Supreme Court in affirming the Superior Court said, "We are of opinion that a verdict could not have been directed for the defendant, but that the questions whether the plaintiff contracted the disease in the defendant's office, and if so, whether it was due to the negligence of the defendant in failing to use clean and suitable instruments, were upon the evidence questions properly submitted to the jury.

"The second count of the declaration was broad enough to warrant a finding that the plaintiff was infected by reason of the negligence of some person in the employ of the defendant, whose duty it was to clean and sterilize the instruments used; there was no variance between the declaration and the proof. As the only exception argued is to the refusal of the court to rule that upon all the evidence and pleadings the plaintiff is not entitled to recover, the other exceptions may be treated as waived." (Drakes v. Tulloch, 107 N. E., 916).

(*Washington*) The experts of the federal health service have just completed an analysis of the various federal and state laws on the subjects of habit-forming drugs. They do not regard the Harrison federal anti-narcotic law which recently went into effect, as affording a solution of the problem.

The New York law, which has been adopted in several other states, and which regards drug addiction as a disease, is looked on by the government health experts as the best of the legislative measures yet devised to eliminate the drug evil. The law provides a systematic treatment for those who are addicted to the use of drugs.

In Michigan, a person who has the drug habit may be adjudged incompetent and a guardian appointed. A law recently enacted in Tennessee permits the sale of narcotics to drug addicts registered according to law. Similar laws exist in other states.

Summing up its investigations, the public health service, in its report says:

"The abuse of narcotic drugs involves economic, social, moral, and public health questions that collectively constitute one of the most serious problems before the people of the United States to-day.

"The principal shortcomings of the present laws are that no method of enforcement is outlined, and no specific appropriations are made for their enforcement.

"In order to bring about a uniformity in the enactment and enforcement of anti-narcotic laws those who are interested in the subject should make a careful comparative study of the existing laws to determine the reasons for the inadequacy of these laws. Statistics should be compiled showing the nature and extent of the use of habit-forming drugs, and earnest efforts should be made to secure uniform legislation which will prevent the misuse of such drugs.

"The solution of the drug problem will be well worth the thought, time and expense required, and all who are interested in the welfare of the American people should give their support to the new federal anti-narcotic law, which aims to reduce the number of drug addicts and to remove the temptation from others."

LECTURE DELIVERED TO THE OKLAHOMA STATE DENTAL SOCIETY, MARCH 15, 1915.

By L. G. Mitchell, D.D.S., Oklahoma City, Okla.

When you have finished your diagnosis and decided on the operation, have it that way. Do not let the patient dictate to you. If a patient wants a tooth extracted and you believe it can be saved, try and save it. Take the same position a surgeon would with a broken leg. If he insists on extraction you look at him a moment, then say: "Mr. Jones, if you have not confidence in my judgment as to what is best for you, why did you come here? You haven't money enough to induce me to extract." Lower the chair and walk away. If he goes elsewhere you have accomplished two things: you have preserved your self-respect and, in time, raised yourself in his opinion. That $1.00 you lost will come back a ten-dollar bill later on for he will repeat what you have said to some thinking person, and he himself will eventually see you were right.

Take the same stand if a patient wants a gold crown on an anterior tooth. A dentist said to me: "I have never made a gold crown for an anterior tooth since I left college and I practiced a year and a half in a town of less than two thousand, too."

If a patient wants amalgam in a back tooth and I believe gold is indicated, if he is abundantly able to have gold he gets gold, or he goes to another office. No man can put dentistry on the basis of a luxury in my office. Neither can they persistently disregard my instruction regarding keeping their teeth clean and remain my patients. They simply have to keep their teeth clean. I tell them it is not a case of should, but a case of must.

When you have progressed thus far in the new order of things you are ready to do some outside work in your schools along oral hygiene lines, but not before.

Do you know if you will prepare a lecture on oral hygiene, and learn it, you will find it a great help in this art of salesmanship at the chair? You will find it very helpful. It will also help you to become familiar with the *why* of oral hygiene and enable you to lecture to teachers at institutes and to the children without having to read your lecture. I do not believe you can accomplish the maximum degree of good when you read a paper, because the subject is too uninteresting to the laity. You fail to drive your argument home so it will stick.—*The Western Dental Journal.*

PRACTICAL HINTS

[This department is in charge of Dr. V. C. Smedley, 604 California Bldg., Denver, Colo. To avoid unnecessary delay, Hints, Questions, and Answers should be sent direct to him.]*

TO CAST ACOLITE SUCCESSFULLY WITH STEAM PRESSURE.—The following method will give results. When ready to cast, take a small iron washer, about size for 5/16 bolt. Heat to bright red over Bunsen burner, drop into casting ring over molten metal; apply moist asbestos pad quickly and no failures need occur as the hot washer develops plenty of steam. —T. A. GORMLY, D.D.S. Mount Vernon, Iowa.

TO MAKE A SPLIT POST FOR BICUSPID HAVING TWO ROOT CANALS.—Take gold clasp wire 15 gauge; anneal and hammer end flat, about depth of root. Split flat end with fine saw, file split halves to fit root canals; re-enforce with 18 or 20 K from fork and a little below; cut off round wire above fork as desired. Easily done, and makes A. No. 1 post for any kind of crown.—T. A. GORMLY, D.D.S., Mount Vernon, Iowa.

TO DEVITALIZE A VERY SENSITIVE TOOTH OR TO DEVITALIZE THE NERVE IN A SOUND TOOTH.—In the case of the sound tooth, take your spear point drill and drill a pit. Drill until it hurts; seal in a small bit of arsenic paste for from twelve to twenty-four hours, when you can drill through to the nerve and use pressure anæsthesia. A peridental injection of novocaine and adrenalin will enable you to cut down at the first drilling and remove the nerve. I prefer either method to N 2O & O and I find my patients do. The cost is practically nothing.—BENJAMIN L. BROOKS, D.D.S., Lynchburg, Virginia.

RELIEVING ALVEOLAR ABSCESS BY SUCTION WITH HYPODERMIC SYRINGE.—Patient presented with a sore superior lateral, wearing a post and plate crown, placed seven years ago, that never before caused any discomfort. Case was diagnosed as alveolar abscess. Crown was removed by drilling up the lingual surface with a twist drill, and pin cut off, then pin was drilled out, tooth being too sore to use a crown

*In order to make this department as live, entertaining and helpful as possible, questions and answers, as well as hints of a practical nature, are solicited.

remover. Root filling was soon removed and access gained to seat of trouble. There was no swelling. Patient was dismissed considerably relieved and told to return in 48 hours. When she returned there was some swelling and much pain; case had not pointed enough to lance. Used broach in canal but could not establish drainage; told patient to suck on tooth but without result. Then an idea struck me. Took a hypodermic syringe with a short needle, placed same as a cork in root, held it tight and pulled on the piston when the pus flowed down through the canal beautifully, and the patient was relieved and indeed thankful. This might not be original, but if it will help a brother dentist to relieve a sufferer, I will be amply repaid for my report of this case.—F. B. J.

Method of Removing a Shell Crown.—The work of removing a shell crown without mutilating it to such an extent that it must be made over is often a very difficult operation. A simple method is to use a bi-beveled or spear drill, making a small opening at the solder line between cusp and band, inserting a broken instrument in the opening thus gained, using a slight rotary motion, thereby breaking up the cement union between cusp and tooth. With a little time and care one is enabled to remove the crown without distorting the cervical contour, leaving the repairing a very simple operation.—*The Pacific Dental Gazette.*

An Easy Way to Remove Impression or Tight-Fitting Plate.—Take your compressed air syringe or chip blower (if you have not got compressed air), raise the lip and direct the air between the impression or plate and the soft tissue. The impression will drop down practically unbroken.—Benjamin L. Brooks, D.D.S., Lynchburg, Virginia.

(I have been in the habit of using water syringe for this purpose and believe that in case of plaster impression the water is preferable because of the adhesion due to the drying effect of the plaster. But with compound impression or plate, I have no doubt the air would work better. V. C. S.)

QUESTIONS AND ANSWERS

Question.—A case came to my notice lately of a discolored lower central incisor that refuses to stay bleached. The discoloration is of a straw brown hue and is evidently on the exterior of the tooth as it can be cleaned white by ordinary methods, and in an hour's time patient reports a reappearance of the discoloration. Would be pleased to know if you can help.—H. B. W.

ANSWER.—Try bringing the surface of this tooth to a highly polished condition with stones, discs, strips, pumice, and whiting.—V. C. S.

Question.—I have a little patient, a girl about thirteen years old who has two badly discolored central incisors and am writing to ask if you can tell me what will be of benefit. It is a dark brown discoloration extending from cutting surface about half way up labial surface of teeth. The stain seems to go all the way through teeth. I have tried everything I know, but so far have not found anything that would do any good. I will appreciate any suggestions you can make.—T. P. N.

ANSWER.—I judge from your description, that these teeth are vital and that it is a case of mottled enamel; very prevalent in some sections of the country and very difficult to deal with. Dr. F. S. McKay of Colorado Springs, Colorado, is chairman of a research committee endeavoring to find a remedy for these cases and it is hoped they will some day be able to tell us at least how to prevent, if not to cure, this affliction. Frequently a vast improvement can be made by grinding and polishing these surfaces, though very often the blemish goes too deep.—V. C. S.

Question.—My little boy, age 13 months, had the lower centrals erupted on time. These were followed by the lower laterals. Upper centrals were delayed and then came through very slowly. Probably because the upper gums were sore to touch of the lower teeth, he began to project the jaw so that the lowers came outside the upper ridge. This has continued as the other teeth have come and become more and more pronounced, the effect being of course, to force the lowers more out and the uppers in, until now it has almost become a deformity and it is growing worse all the time. I tried to keep on an appliance to force the lowers in. Have tried everything in the way of bandages, etc., that I could think of. Anything tight or rigid enough to have any effect, hurts his mouth and worries him so it has to be taken off. I am much troubled about this, as it seems likely that the habit will become fixed and the distorted or distended muscles grow that way. I have asked everybody possible but no one seems to know what can be done. Can you help me with any suggestions or do you know of anyone I can write to?—E.C. McC.

ANSWER.—I have consulted two or three orthodontists about your little boy. They seem to agree that it is a difficult case to handle. Dr. McKay of Colorado Springs, thinks it would be just as well to wait until his permanent teeth are erupting before attempting to do anything. Dr. A. H. Ketcham of Denver thinks you should take an impression of the chin and swage a cup of aluminum to fit it, this cup to be joined with

elastic straps to a bonnet fitting the head. This he thinks should be worn only two or three hours a day because of the danger of flattening the soft bones of the skull if pressure is maintained continuously. All seem to agree that the upper teeth are apt to be retruded as well as the lowers protruded, and you would have to consider that, before attempting to draw the lowers back to an occlusion distal to the uppers in their present position.—V. C. S.

EDITOR PRACTICAL HINTS:

I am surprised at your lack of confidence in aluminum, having used it ever since 1889 with great satisfaction. I have had no trouble in the disintegration of the metal but twice and that was readily accounted for. I have found that the only method of attachment is in the use of the loop punch. A series of eight loops along the margin and eight along the ridge should the plate be unsatisfactory.—L. P. HASKELL, D.D.S., Chicago, Ill.

V. C. Smedley, Winchester, Indiana.
604 California Bldg.,
Denver, Colorado.

MY DEAR SIR,

Would like to express my appreciation for the assistance you rendered (via. of a foot note), to my small contribution on "Method of making lower plates," in July DENTAL DIGEST, Practical Hints, page 451.

I did not know whether it would be of any benefit, or not, to any dentist, who had the misfortune to reset (at the request of a disgusted patient), some of their lower dentures made with the assistance of an anatomical or plain line articulator.

I wouldn't recommend this method until after they had reset them two or three times, because it would be "A compromise with the ideal of good plate work," but since you O-K-ed my article so nicely with that masterpiece in parenthesis, I feel extremely honored.

Am sure when I get more practical knowledge of plate work, like yourself (I have only had 21 years as yet), it would be the height of my ambition to hold a position like yours, and be able to add footnotes to contributions for the benefit of airing my own knowledge for the editor and to protect dentists who can't think and act for themselves. From now on, I will look forward to your *masterpieces in parenthesis* in the future DIGESTS.

If you should ever decide to give a Post Graduate Course in plate work, please notify me, as I admit I don't know everything. Thanking you again for your assistance *once*, I beg to remain

Very truly yours,
JOHN H. BEALS, D.D.S.

ANSWERING DR. J. H. BEALS

Your favor relative to my footnote duly received. I must say that I prefer the kind of criticism that hits straight from the shoulder to your subtle sarcasm; but as your meaning is unmistakable I think it deserves a frank reply. I may have the wrong idea and perhaps it is not what DIGEST readers want, but I have a feeling of personal responsibility for everything published in Practical Hints, hence I have considered it my duty either to reject absolutely or follow with my own opinion any articles contributed that do not meet with my full approval. I have tried always to do this in a courteous manner, simply stating my thought as an opinion, leaving the reader at liberty to accept whichever meets with his approval. I will always welcome and publish gladly any criticism of or disagreement with my ideas.

As to your gentle intimation that I have not had sufficient experience in plate work to justify me in taking exception to an idea of yours with your 21 years of experience, permit me to state that I have been following plate work with an especial interest for eleven years, having limited my practice to Prosthetic Dentistry for five years, and I venture to say that, unless plates form a larger proportion of your practice than is the case with the average dentist, my experience in that line is at least equal to yours.

V. C. SMEDLEY.

HÆMORRHAGE AFTER DENTAL EXTRACTIONS

By Philip Gell Garrett, M. B., B. S. Durh., M. R. C. S. Eng., L. R. C. P. Lond., D. P. H.

During the first half of last year I had an unusual number of cases of bleeding following tooth extraction. The most recent case was followed by death, and is, I think, worth recording.

The patient was a young married woman, aged 32, the mother of two children; she was tall but somewhat frail, and was the subject of some mitral regurgitation. She suffered from neuralgia, and as her mouth contained a number of stumps she was advised to have them removed. On the morning of June 19, 1914, she came to see me because her gums were bleeding. I found that the blood issued from the socket of an incisor tooth which had been removed the day previously. The extractions were made about 6 P. M. on June 18th. The husband says that there was no bleeding at bedtime. At 6 A. M. on the 19th she found that her mouth was bleeding, and between 6 and 8 o'clock she lost quite a considerable quantity of blood. Between 9 and 10 A. M., when she visited me, I found a good deal of blood-clot, but bleeding soon stopped after pressure was applied. I saw her later in the day, when there was still no bleeding. She came to see me about 8 P. M., and was still all right. She took a motor-bus home, and then seemed to be in her usual health and spirits. At 1 A. M. on June 20th to her husband she appeared as usual. At 4 A. M. he awoke and found her with her face set. I was sent for and she was dead. I notified the coroner of her death and he decided to hold an inquest. A verdict of "Death from heart failure" was returned.

A few somewhat important points are to be gathered from this and other cases of the sort. (1) I am told that 40 per cent. of those who extract teeth are not on the Register. (2) Local anaesthesia is obtained by the injection of preparations containing powerful drugs. In the case quoted the preparation used was obtained from a firm of great repute. Most of these preparations contain cocaine and adrenalin, and it is very doubtful whether many of the operators know anything more of the action of these potent drugs than that they relieve pain and for a time check bleeding. (3) Many dentists think that they do their duty by a patient if they keep him under observation for about 15 minutes. Another patient had teeth extracted at 7 P. M., and there was so much

bleeding hours after, that I was sent for. My assistant saw her at 4 A. M., and remained with her for half an hour. (4) There is not only danger from hæmorrhage, which may come on hours after the patient has left the dentist, but there is also the danger of absorption of a poisonous dose of cocaine. It should be added that the half dozen patients whom I have in mind were probably distributed amongst at least four different operators.—*The Lancet.*

EARL SHILTON, HINCKLEY.

RHEUMATIC FEVER AND RHEUMATOID ARTHRITIS

BY J. T. CLARKE, LONDON, ENG.

J. T. Clarke summarizes the various theories of the etiology of rheumatoid arthritis as follows: (1) It is a neurosis; (2) there is a deficiency of lime salts; (3) it is due to a disturbance of metabolism; (4) it is caused by absorption from chronic sores such as those of pyorrhea alveolaris, or those in the region of the anus; (5) it is due to insufficient sweating; it has a relationship to rheumatic fever; it is a specific disease. Of these the first four are just as likely to occur in the tropics as in the temperate climates, and the fifth is just as likely to be an effect as a cause and is very variable in different people in the tropics. No. 6 of these theories is supported by the geographical distribution. Neither rheumatoid arthritis nor rheumatic fever occurs in the tropics, and both are common in certain parts of the temperate zones. The author adds to the reasons for believing that rheumatoid arthritis is a specific disease and that it may have a relationship to rheumatic fever or possibly require that disease as an antecedent; and believes that the knowledge that these two diseases are absent from the tropics may give a clue to their etiology, but especially to the etiology of rheumatoid arthritis. Egypt is regarded as providing an almost certain cure for rheumatoid arthritis.—*Medical Record* (*Lancet*).

CHRONIC PROGRESSIVE POLYARTHRITIS OR ARTHRITIS DEFORMANS

Boorstein is of the opinion that this disease has no relation at all to rheumatism and antirheumatics should be avoided. He says that the predominating cause is distinctly an infection either in the joint itself or at a distant point. The disease is not dangerous to life and is usually self-limiting, but it leads to marked deformities making the patient a

cripple. Prophylaxis in preventing any systemic infection and keeping digestion and intestinal tract in good conditions is essential. Removal of chronic foci anywhere in the body is imperative as a prevention of progressive ill-health. When the disease is present, the place of infection should be sought for and the territory cleared, if possible. General treatment, such as good hygiene, good food, tonics and building up of the patient, is essential to success. Acute joints should be kept at rest. When the active symptoms subside, local treatment to the joints in the form of active and passive hyperemia, hydrotherapy, massage, active and passive exercises, should be administered regularly with great care and patience and kept up for a long time. The occurrence of deformities should be prevented by steadying the joints in proper position at the time of acute infection. When the deformities have already occurred they should be corrected.—*Journal American Medical Assoc.*

A STUDY OF STREPTOCOCCI FROM PYORRHEA ALVEOLARIS AND FROM APICAL ABSCESSES

By Thomas B. Hartzell, M.D., and Arthur T. Henrici, M.D., Minneapolis

It has been found that streptococci of the viridans group are constantly present in peridental suppurative lesions. While such streptococci are normally present in the saliva and on the buccal mucous membrane, it is believed that by the technic employed contamination from this source has been excluded. These streptococci are normally of low virulence, but at times are able to produce lesions of the heart, aorta, kidneys, and joints, some of which closely resemble the lesions of rheumatism. From the evidence thus far obtained, it cannot be stated that these streptococci bear an etiological relationship to dental abscesses and pyorrhea, but with respect to metastatic infections, it is important to know that such organisms are constantly present in lesions presenting a large ulcerated surface; through which they may, and probably do, frequently pass into the deeper tissues and the blood stream.

A series of five cases histories are given with diagnosis, dental lesions found, treatment and prognosis. Also the animal and bacterial experimentation carried on in the investigation of these cases.

PERNICIOUS ANEMIA IN ROENTGENOLOGY

Aubertin has previously pointed out that in the blood of persons having much to do with radiant energy the leukocytes are frequently much modified, the numbers extremely low, with hypopolynucleosis and eosin-

ophilia. The reds never seemed to suffer in the cases examined, but an exception to this rule has been afforded by the tragic fate of Doctor Tiraboschi who has recently succumbed to progressive pernicious anemia. The blood-producing organs were found the seat of important changes, especially the spleen which was in pronounced atrophy. He had been in charge of the Roentgen department of the Bergamo hospital in Italy for fourteen years, and at one time had a Roentgen dermatitis which soon healed without ulcerating. His two sons are healthy. The atrophy of the spleen and the content in iron-containing pigment were beyond anything Aubertin has ever encountered. These findings resembled those in animals after repeated intensive Roentgen exposures, and suggest that the Roentgen rays are liable to induce a special pernicious anemia in certain cases.

LATENT INFECTION

Melchior reports a number of experiences which teach that when a phlegmon, a focus of osteomyelitis, or a suppurating glandular process heals, this is by no means equivalent to a complete cure in the bacteriologic sense. The infection has merely subsided into an inactive stage, a partial immunity. The germ of a recurrence or metastasis is already installed. The conception of a "resting infection" throws light on many cases of so-called predisposition or diathesis, and it also is suggestive for estimation of the effects of trauma.

This suggestion may find many applications in dentistry, i. e., blind-abscess, healing over of abscessed sockets after extraction, etc.—Abstracts from *Journal of American Medical Association.*

RIGHT TO RECOVER FOR DENTAL SERVICES

There can be no recovery in New York for dental services where plaintiff fails to show that when he performed the services he was duly licensed to practice his profession, according to a recent decision of the New York Supreme Court handed down in the case of O'Beirne vs. Carey, 150 New York Supplement 666. This decision means more than that an unlicensed dentist cannot recover for work done; it means that even a licensed dentist must affirmatively establish the fact that he has been duly registered. In the latter case, the dentist's assumption that the patient who is sued will not controvert the fact that a license has been issued is apt to result in an adverse judgment, unless respect is paid for the decision announced in the cited case.

AN EPITOME OF CURRENT DENTAL AND MEDICAL LITERATURE

[*The Dental Review*, August, 1915]

Original Communications

*A Talk About Dental Radiography. By H. R. Raper.
Silicate Cements and Their Possibilities. By H. C. Waack.
Report of the Committee on Dental Science and Literature. By G. C. Poundstone.
Report of the Committee on Dental Art and Innovation. By G. E. Meyer.
Report of Committee on Necrology. By I. D. Reid.
Local Anesthesia. By E. P. Brady.
A Pressing Need in Dentistry. By C. N. Johnson.
The Treatment of Pyorrhea. By W. Carmichael.

Proceedings of Societies

American Dental Society of Europe.
Chicago Dental Society.

Editorial

The Coming Meetings at San Francisco.

A TALK ABOUT DENTAL RADIOGRAPHY

By H. R. Raper, D.D.S., Indianapolis, Ind.

Taken as a whole, is the pulp canal treatment work of the dental profession good or bad? The stand is taken that it is bad; and, making observations from this stand the reasons are:

First, until recently, nobody—neither dentists, physicians nor scientists—realized the serious necessity of doing better canal treatment. The idea that an improperly treated tooth might produce invalids, cripples, and death was unheard of until Dr. Hunter, of London, brought it to the attention of the medical and dental professions.

Second, it has always been and still is an economic impossibility for the average man to do good dental treatment work for the *average patient* for the *average fee*, without, at the same time, reducing his income to a pitifully small amount.

The third cause of unsuccessful treatment of teeth is the extremely difficult technic involved due to unfavorable physical or mechanical conditions.

PHYSICIANS ARE ADVISED

1. Shoulder up your share of the responsibility for the occurrence of local foci of infection in the mouth.

2. Do not advise the extraction of two teeth because one tooth is abscessed—nor of all teeth because some are abscessed.

3. Never advise extraction without first making radiographs.

4. Have an expert read the radiographs, or pass on your reading, until you have become expert.

5. Do not say all teeth with the pulps removed should be extracted, for we do not know that this is true.

6. Do not forget that teeth have an important function. This is just as much a truth as it ever was. Keep it in mind.

7. Wake up to the fact that to learn what you should know of this subject you must hear what dentists have to say about it. Invite them to lecture at your meetings and in your schools.

8. Keep this in mind: The dentists of the United States have developed a Research Commission which will rank with Carnegie and Rockefeller Laboratories for Research.

9. Remember that most of the diseases of infancy were once attributed to teething.

DENTISTS ARE ADVISED

1. Do not jiggle about, and try to sidestep the situation.

2. Support the National Research Commission with your heart, mind, and money.

3. Let the apical excision, or curettement, operation become a common one, not an uncommon one.

4. Admit that the destruction of pulps has been ruthless, and as you admit it correct the mistake.

5. Develop a new and better bridge work. Bridge work is not to be relegated to the scrap heap—but it should be modified.

6. Never expect to hear again the man who came to your meeting and said he "filled all canals to the apex."

7. Admit it is impossible to reach and fill to the apex all canals. No man can do it by the methods you now use.

8. Look to the National Research Commission to learn if you should extract teeth when it is impossible to fill the canals to the end.

9. Know that it is not a crime to fail to fill a canal perfectly, but that *it is a crime* not to try to fill it.

10. Charge for the treatment of teeth on a time basis and render a bill whether you save the teeth or not.

11. Discontinue the use of proprietary preparations for canal filling and look to the National Research Commission to make public the formulæ of these preparations.

12. Change your slogan from "Save Teeth" to "Save Teeth—*but never at the expense of producing a chronic abscess.*"

13. Do not depend on medical men to make and read your radiographs for you.

TO RADIOGRAPHERS

1. Do not read a diagnosis into every radiograph whether it is there or not. Learn to say, when it is the case, "The radiograph shows me nothing."

2. Believe in the infallibility of the radiograph, knowing it is the product of definite and unchanging chemical and physical laws, but realize that, unless you know these laws, it may mislead you.

3. Never deny the assertion that radiographs have unfortunate limitations. Though the radiograph is the greatest single aid to dental diagnosis, it nevertheless fails often to show us what we want to see.

4. Understand the necessity of making more than one radiograph of a single case. When in doubt, verify with another radiograph.

5. Distrust any radiographic finding that is not backed up by the clinical evidence.

6. Do not profess to be a dental radiographer unless you are a dental pathologist.

7. Try not to blame the radiograph for your occasional silly interpretations of it.

8. Know the following as the list of the most common misinterpretations of radiographs:

(a) To mistake the anterior palatine foramen for a dento-alveolar abscess of an upper central incisor.

(b) To mistake the mental foramen for a dento-alveolar abscess of a lower bicuspid.

(c) To mistake the maxillary sinus for a dento-alveolar abscess of the upper bicuspids or molars.

(d) To assume, from the appearance of single radiographs (not stereoscopic radiographs) that the roots of teeth penetrate into the antrum, when the appearance of this condition may be due to distortion, or lapping, of the roots to the buccal or lingual of the antrum.

(e) To mistake the mandibular foramen for osteoporosis, due to disease.

(f) To mistake a small cervical filling for a pulp nodule.

(g) To assume that a canal filling in an upper tooth fails to reach the end of the root when this appearance of a faulty canal filling is due to the relative positions of tube, film and tooth at the time of exposure.

9. Understand that it does not fall within the province of radiographers to be harsh critics of either dentists or physicians. Your position is a delicate one. Handle it with patience, kindness, coolness, and honesty. Do not try to turn things upside down all at once.

[*The International Journal of Orthodontia*, July, 1915]

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Original Articles

A Brief Review of Certain Histological and Etiological Factors in the Treatment of Malocclusions. By Clinton C. Howard, D.D.S., Atlanta, Ga.
Judgment in Orthodontics. By E. A. Bogue, M.D., D.D.S., New York, N. Y.
*Duplicating Orthodontia Models. By J. A. Cameron Hoggan, D.D.S., Richmond, Va.
Dental Röntgen Reports. By Edward H. Skinner, M.D., Kansas City, Mo.
Case History. By H. C. Pollock, D.D.S., St. Louis, Mo.
The Importance of Rickets to the Orthodontist. By F. Hecker, B.S., D.D.S., A.M., M.D., Kansas City, Mo.

DUPLICATING ORTHODONTIA MODELS

By J. A. Cameron Hoggan, D.D.S.
(Professor of Orthodontia in the School of Dentistry of the Medical College of Virginia, Richmond)

Flake glue is prepared in thin chips about 1-32 inch in thickness. It is the glue which is used for duplicating plaster decorations on ceilings and statuary. The ordinary variety of glue is not suitable for this purpose. A tin dish about 8 inches long, 4 inches wide, and 3 inches deep is the right size to contain two models and sufficient glue. An ordinary double boiler, the inside portion to contain about two quarts, completes the necessary apparatus. The inside portion of double boiler is filled with flake glue, and sufficient cold water is then added to cover. This is allowed to stand until the glue becomes softened. Half of the water is then removed from the glue. Water is placed in the outer boiler, the two parts of the boiler put together and placed over the flame. It is allowed to heat until the water in the inside boiler raises to the top of the glue.

The double boiler is then removed from the flame and the whole mass is allowed to stand until liquid, after which the inside boiler is lifted out of the hot water in the lower portion, and the glue allowed to stand until a scum begins to form on the surface, when it is ready to pour.

The models to be duplicated are first thinly coated with vaseline and placed in a tin dish with teeth presenting upward and the glue poured over them. The secret of the success of this process is to make the mass of glue liquid at the lowest possible temperature, then to pour it over the models at the moment in which it is still liquid, but beyond which it would congeal. If models have a tendency to rise in liquid glue, they may be cemented to the bottom of the pan with a little sticky wax. This is allowed to stand in a cool place for at least 12 hours, after which congealed glue is removed from the pan and the models are carefully lifted out by springing the glue aside. The glue impression is now ready

to pour with plaster of Paris. These models may be removed from the impression in 10 minutes but are set aside for an hour to allow the surface of the model to set, it being softer than ordinary models for the depth of $\frac{1}{4}$ inch. The models are removed from the glue impression. Model is then retouched, and if desired several sets can be reproduced from the same glue impression.

[*The Dental Summary*, August, 1915]

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Regular Contributions

The Relation of Mouth Infection to Systemic Disease. By Martin H. Fischer.
Uric Acid—A Supplement to Last Year's Paper. By J. L. Mewborn.
*Blood Pressure in Dentistry. By E. I. McKesson.
Our Responsibility in Neglecting and Treating Dental Malposition. By Varney E. Barnes.
Standardizing the Amalgam Filling. By Walter G. Crandall.
Relation of Diet to Dental Caries and Mouth Infection. By J. H. Kellogg.
Some Conclusions Regarding the Importance of the Principles and Requirements of Bridge Work. By Alden Bush.
Acute Parenchymatous Glossitis. By Virgel Loeb.
President's Address. By W. H. Caldwell.
Osteoplastic Surgery of the Face. By W. Wayne Babcock.
Appliance for the Treatment of Rigg's Disease. By W. T. Davis.
The Flat Lower Jaw Problem. By L. P. Haskell.

Health Conservation

Essential Factors in Establishing and Maintaining a High Standard of Public Health. By Homer C. Brown.

Editorial

Just a Word of Caution.
Disease of Metals.

Obituary

Samuel Smith Nones

BLOOD PRESSURE IN DENTISTRY

By E. I. McKesson, D.D.S., Toledo, O.

After eight years' work making blood pressure records as a routine every five to ten minutes during operations, comprising about everything done in modern surgery, a very large majority of which have been done under N_2O-O anesthesia, it was found that:

1. N_2O-O does not cause a rise in blood pressure.
2. That asphyxiation may increase blood pressure.
3. That a deep rose color (purplish) often seen in N_2O-O anesthesia is an insufficient grade of asphyxia to produce a rise in blood pressure above the normal in more than one per cent. of cases, and even these not

above the limits of safety for the patient; such a rise occurs in the first few moments of anesthesia and immediately returns to normal or below.

4. With ether in excitement with the same case the rise would not be less.

5. That under N_2O-O anesthesia the blood pressures have a greater tenacity for their normal readings in the particular patient than under any other form of anesthesia including local.

6. That in very prolonged and extremely traumatized operations the blood pressures fall under N_2O-O, reaching shock values only as a result of the operative procedure, or the disease affecting the patient.

When N_2O is given *without oxygen* anesthesia develops in from thirty seconds to three minutes; asphyxia, however, is quite advanced at seventy seconds, and before three minutes the patient is usually in spastic apnœa. It is under *these* conditions that N_2O obtained the reputation of causing a rise in blood pressure, but with the addition of oxygen to prevent asphyxia, blood pressure is rarely affected by this anesthetic.

Without going into the large and interesting subject of shock, I wish to bring out the important points in its diagnosis and prognosis.

1. That shock is a depression characterized among other variable symptoms by the invariable symptoms of a low blood pressure.

2. That it may be and is often caused by fear or emotion, hemorrhage, repeated stimulation of the vaso-motor centres through afferent or sensory nerves, and is generally associated or accompanied by over ventilation or rapid breathing, etc.

3. The diastolic pressure usually imitates the change in pressure, by a fall lasting but a few minutes when the pulse rate increases and brings it up again.

4. The pulse pressure decreases in proportion to the degree of shock and heart exhaustion.

5. After a pulse rate of 120 is reached a further increase of speed will not compensate for the widening of the "arterial bed," but the pressure will fall in spite of increased rate, probably because the heart is too quick to fill properly.

6. That these pressure changes come on gradually during an operation with the patient under anesthesia when the mental element is eliminated. The time varies from fifteen minutes to two hours.

7. That a pulse pressure of 15 m.m. or less continued for more than half an hour and associated (in an otherwise normal patient) with a diastolic pressure of less than 70 m.m. will generally result fatally.

8. Shock once well established under an anesthetic usually persists until recovery of consciousness at least. In less favorable cases it persists longer and is the more dangerous the longer it exists.

[*Items of Interest*, August, 1915]

Exclusive Contributions

*Operating Without Pain. By F. W. Barbour, D.D.S., Fredericton, N. B.

Society Papers

Root Canal Preparation. By J. R. Callahan, D.D.S., Cincinnati, Ohio.
Rosin Solution. By Dr. J. R. Callahan, Cincinnati, Ohio.

Exodontia

Wisdom Teeth. By John D. Thomas, D.D.S., Philadelphia, Pa.

Society Discussions

Second District Dental Society. Discussion on Dr. Callahan's Paper.
Second District Dental Society. Discussion of Dr. Best's Paper.

Editorial

Review of Articles and Discussions on Root Canal Treatment.

OPERATING WITHOUT PAIN

By F. W. Barbour, D.D.S., Fredericton, N. B.

Comparison of analgesia, secured through the administration of nitrous oxide and oxygen gases, with Buckley's Desensitizing Paste were as follows:

CONCLUSIONS

The conclusions drawn from an unprejudiced consideration of the cases dealt with in both of the methods under review, lead to the positive opinion that they are very valuable contributions to both patients and operator, but that neither can be relied upon at all time to perform the desired service.

Each seems to have particularly favorable conditions that anticipate surety of effects, but at the same time each will develop unanticipated failures.

In neither case is overconfidence advisable, and both require carefulness to the last degree.

It has been shown that there are various conditions unfavorable for each, and judicious selection, when either is called for, is necessary.

In cases where there are no cavities existing, or where so minute or inaccessible as to make sure sealing impossible, then it is apparent that resource to paste application is unwarranted.

In cases of unwillingness on the part of the patient, or where physical or mental disability exists, analgesia cannot be proceeded with properly.

There will, therefore, be times when, in spite of both of these admirable expedients, conditions will present when we will be compelled to continue doing the best we can with such other aids as are available.

[*The Dental Cosmos*, August, 1915]

Original Communications

*The Nose, Throat, and Ear as Neighboring Organs to the Teeth. By Wm. R. Butt, M.D.
Further Studies on Novocain-suprarenin Anesthesia (II). By R. H. Riethmüller, Ph.D., D.D.S.
The Therapeutic Action of Buckley's Desensitizing Paste. By Hermann Prinz, A. M., M.D., D.D.S.
The Securing and Maintaining of Asepsis During Canal Operations. By A. P. Lee, D.D.S.
*Normal Occlusion the Basis of the Practice of Dentistry (Correspondent's Report, New York State Dental Society). By L. M. Waugh, D.D.S.
Notes on Current Dental Practice. (Report of Committee on Practice, New York State Dental Society). By D. H. Squire, D.D.S.
Some Points in Soldering. By E. L. Kanaga, D.D.S.
Blood Changes Produced by Nitrous Oxid and Oxygen Anesthesia in Both Man and Lower Animals. By T. D. Casto, D.D.S.
The Method Used by the New York State Department of Health in Presenting Oral Hygiene to the Schools of the State. By W. A. White, D.D.S.
The National Mouth Hygiene Association's Lecture Dental Service. By E. N. Kent, D.M.D.
President's Address (New York Dental Society). By Dr. A. M. Wright.

Proceedings of Societies

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Editorial Department

The Four Years' Curriculum.
Bibliographical.
Review of Current Dental Literature.
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Hints, Queries, and Comments.

THE NOSE, THROAT, AND EAR AS NEIGHBORING ORGANS TO THE TEETH

By William Redfield Butt, M.D., Philadelphia, Pa.

Mention is made of cases in which earaches in normal ears were due to decayed teeth. Also a case of acute inflammation of the ear localized in teeth. Sore throat may arise from unerupted third molars. Paralysis of the facial nerve is very often caused by disease in the ear or mastoid cells. Cases of mouth breathing, in children, malformed palate, and nasal obstruction call for the coöperation of the dentist. Dental regulation of the erupting teeth and the proper formation of the dental arch with proper occlusion have a primary effect on the shape of the nasal cavity and the nasal septum.

Bowing of the septum and ridges along its base caused by defects in eruption of the incisor teeth call for dental regulation during the period of development. Deflected nasal septum in adults is due to the bending and the overlapping of the parts.

In the case cited the excessive growth in a confined space has distorted it and would not spring back into a straight line even if the hard palate were entirely removed. For this condition rhinologists possess an ideal operation—the submucous resection of the septum. No dentist or orthodontist need hesitate to heartily recommend this operation to any patient needing it.

I would call the attention of orthodontists and dentists to the fact that unlimited increase in the width of the nasal cavity is not always to be desired; a too wide open nose is almost as undesirable from a functional standpoint as a contracted nasal cavity—producing, in fact, practically the same effects as mouth-breathing, *i. e.* by allowing the air to rush on into the lungs before it is properly warmed and moistened by contact with the nasal musoca.

Rhinologists are ready to coöperate with the dentist or oral surgeon in the treatment of the antrum, and by their ability to treat this cavity through its nasal wall have what, for many conditions, is a simpler and better method than treating this cavity through the alveolus. Where a general infection of the antrum is suspected, a simple puncture of the antrum through the nasal wall with a suitable hollow needle under cocain anesthesia allows us to wash out the cavity and at once show positively whether or not it contains pus. With the same kind of local anesthesia, a large permanent opening can be made along the floor of the naso-antral wall for drainage. The usual Caldwell-Luc operation through the front wall behind the canine tooth is wisely reserved for cases in which simple drainage is insufficient.

Rhinologists see many cases of antrum infection following similar infections in the nose, especially after la grippe, in which there seems to be no involvement of the teeth, and others in which there is pain in the teeth apparently due to irritation of the dental nerves within the antrum. Too great care cannot, however, be taken in searching for a dental origin for all antrum infections; and I have seen cases clear up immediately after extraction or attention to the offending tooth.

Considering that the antrum is a part of the nasal cavity, we find that when it is infected it is often only a part of an infection involving other of the accessory sinuses as well.

Dentists must frequently see patients who are extremely uncomfortable in the dental chair on account of mucus and pus dropping down into the pharynx while the head is thrown back. These are usually cases of nasal catarrh or sinusitis that throw off a discharge which falls down the pharynx—conditions which can always be relieved and usually cured. Sore throat and hoarseness as well as indigestion are often due to the constant dripping of this infected matter down the pharynx from the nose.

FOREIGN BODIES IN THE LUNGS AND ESOPHAGUS

With the bronchoscope, the esophagoscope, and the suspension laryngoscope, the laryngologist can now view and remove foreign bodies from the lungs and esophagus.

There is a field for the use of the dentist's gas-oxygen apparatus in the office work of the medical man, and where dentists and M.D.s are located convenient to each other in practice this can be used with profit to both.

For opening the drum membrane and incising furuncles in the ear canal—places where local anesthetics fail—gas-oxygen anesthesia in the office avoids a trip to the hospital or an otherwise very painful procedure, and is one of many occasions in which dentists and M.D.s may well work together.

NORMAL OCCLUSION THE BASIS OF THE PRACTICE OF DENTISTRY*

By L. M. Waugh, D.D.S., New York, N. Y.

SUMMARY OF CONCLUSIONS

(1) Normal occlusion is the basis of the practice of dentistry.

(2) The full complement of natural teeth or their anatomic duplicates is essential to normal occlusion.

(3) Study models are essential to most efficient dentistry—(*a*) When considerable areas of occlusion have to be restored. (*b*) When malposed teeth have to be moved into normal position. (*c*) Models for study and record should invariably be made when there is the least doubt as to the proper procedure.

(4) Malocclusion is the most important causative factor in so-called pyorrhea, and conversely, pyorrhea seldom is to be found when the teeth are in normal occlusion and in proper use.

(5) A gradual retrogressive change is taking place in the teeth and arches when in malocclusion. The rapidity and degree of this change will vary greatly in different individuals according to histologic constituents, but it always takes place in some degree.

(6) The retrogressive change which takes place in the relations of the teeth and arches reaches the minimum in proportion as the occlusion approaches normal. When the teeth are in normal occlusion there should be no change other than that which is inevitable and is expressed in the term "old-age tendency of the human body," except in rare cases of grave constitutional origin.

(7) The third molar should be zealously conserved when in occlusion and it may be maintained in a state of health.

*Report of the Correspondent, New York State Dental Society.

(8) Third molars when in normal healthy relations serve: (*a*) For the purpose of maintaining tight approximal contacts. This becomes progressively more necessary with advance of years. (*b*) To afford greater masticating surface in themselves and to increase the collective crushing force of the teeth. (*c*) For normal development and harmonious contour of the face. (*d*) For abutments if needed later. (*e*) For the protection of supporting structure about the second molar.

(9) (*a*) "As a principle" governing best practice, it is imperative that, in youth, teeth that have drifted because of the loss of an adjoining tooth be moved into normal position prior to the placing of an artificial substitute. (*b*) In middle life and with advance of age, each case more and more becomes a law unto itself, but when efficient and artistic demands dictate, it should be done, except with invalids and the aged.

(11) The Oscillating Bite as a means of producing anatomic occlusion in limited areas, as given by the writer in a clinic before this society at the previous two meetings, has not been generally understood. Therefore and because a description of this method has not appeared in print the technique will be given as the concluding part of this report.

(12) In making full dentures it is essential to the most efficient result that the correct position of the models to the point of motion be established in the antagonizor.

(13) The Snow face-bow or some one of its modifications is essential to the establishment of the correct position of the models to the point of motion in the antagonizor.

(14) (*a*) The reproduction of marginal, triangular, and oblique ridges *in harmony with those in the mouth*, together with properly placed contact points and well-defined angular grooves and sulci, is essential in restoring most efficient occlusion. (*b*) In making artificial dentures the reproduction of these anatomic features is also essential to most efficient results.

(15) In the restoration of lost occlusal areas, an accurate anatomic counterpart is necessary to the retention of teeth that have been placed in normal occlusion.

[*The Pacific Dental Gazette*, July, 1915]

Original Articles

*The Consideration of Constitutional Disorders as an Etiologic Factor of Malocclusion of the Teeth in Children. By James D. McCoy.

Nitrous Oxid and Oxygen Analgesia. By William R. Bacon.

Constructive Diseases of the Dental Pulp. By E. Larbalestier.

Oral Prophylaxis in the Practice of Orthodontia and Discussion. By Wm. H. Bolton.

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Special Article

J. Franklyn Cook.

THE CONSIDERATION OF CONSTITUTIONAL DISORDERS AS AN ETIOLOGIC FACTOR OF MALOCCLUSION OF THE TEETH IN CHILDREN

By James D. McCoy, D.D.S., Los Angeles, Cal.
Professor of Orthodontia and Radiography, College of Dentistry, University of Southern California

Certain diseases have an important bearing upon development, or more properly speaking, upon arrestments of development. These conditions will be enumerated briefly under separate headings as follows:

I. The ordinary diseases of childhood which are accompanied with high temperature.

II. Congenital or Heredo-Syphilis.

III. Rickets.

IV. Diseases of the Internal Secretory Organs.

DISEASES OF CHILDHOOD

All diseases of childhood which are accompanied with high temperature, such as scarlet fever, measles, chicken pox, etc., exert a very deleterious effect upon the epithelial structures. The evidence of the preexistence of these diseases is present in the mouths of many children coming under our observation, who present teeth in which the enamel organs underwent either atrophy or arrest in development to the extent that the teeth affected are faulty in shape, size, and structure. At birth, calcification of the crowns of the deciduous teeth, is well advanced, and the crown of the permanent first molar has also begun to calcify.

HEREDO-SYPHILIS

According to Stein "some forms of hypoplasia of the teeth are certainly syphilitic, others may be attributed to syphilis, and others are certainly not caused by syphilis." He further states that these stigmata upon the teeth can be produced only during the development of the teeth, and are the result of some interruption in the process of calcification. These stigmata may appear on any part of the teeth from the morsal surface to the gingival margin, depending upon the time when the morbid influence of the disease was sufficient to produce them. The first permanent molars, incisors, and cuspid teeth are named by him as being the ones most frequently showing the effects of the disease, as the first molars are beginning to undergo dentification during the last months of fetal life.

Teeth with crowns somewhat resembling sharks' teeth, twisted teeth, pegshaped teeth, uni-, or tri-horned teeth, are also attributed to this cause, and some medical authorities on syphilis even attribute the "open bite" and a symmetrical maxillæ to this source.

RICKETS

Rickets is a disease of malnutrition, characterized by faulty bone formation. This disturbance of metabolism in which calcium plays a very important rôle, occurs most frequently between the ages of six and eighteen months.

Normally, bone contains about $\frac{1}{3}$ organic and $\frac{2}{3}$ inorganic matter. In marked cases of rickets the proportions are reversed, the bones often containing twice as much organic as inorganic matter. Characteristic changes in form are seen, particularly in the long bones, but all bones are affected to some degree and it is only reasonable to expect deformity in bones subject to muscular stress, as for instance the maxillæ. Rachitic bone does not offer sufficient and proper support for the teeth to withstand the positive force of the muscles of mastication, and as a result deformity to some degree nearly always ensues.

As a rule, dentition is late and apt to be difficult. The character of teeth in rickets is usually good. Cases of malocclusion in which rickets has been a factor show a narrowing of the maxillae and a widening of the mandible in the region of the molars extending backward. The lower portion of the mandible is turned outward and the teeth are turned inward.

The internal secretary organs also play an important part in bodily development and nutrition. The pituitary glands, the adrenals, the thyroid, the parathyroids, the thymus, the testes, and the ovaries, are supposed to preside, by virtue of their secretions, or in some cryptic

manner over certain correlations of the body. They are coöperative with or compensate and inhibit each other in cycle, any interfering influence or disease which disturbs this coördination seriously and very diversely affects nutrition, bodily development, and functions.

[*The Texas Dental Journal*, August 1915]

Original Communications

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Nitrous Oxide and Wherein Lie Its Limitations.
Thirty-Fifth Annual Convention of the Texas State Dental Association.

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[*The Dental Register*, July, 1915]

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Special Richmond and Goslee Crowns. By Ardashes J. Nishon and Eber J. Reynolds.
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A Million Dollars for Oral Hygiene a Reality—Rochester's New Dental Infirmary—Gift of Mr. George Eastman.
The Blessings of the Tooth Brush. By E. B. Clapp, Boston, Mass.
Radiography. By Arthur W. Smith, D.D.S., Rochester, N. Y.
The Fallacy of the Dental Guarantee. By W. H. Savage, D.D.S., Clifton Forge, Va.
In Defense of Emetine. By Wm. Quitt, D.D.S., Baltimore, Md.
Thrift. By Harry J. Homer, D.D.S., Pittsburgh, Pa.
In Defense of the Tooth Brush. By W. H. Barth, D.D.S., Great Falls, Montana.
Correspondence.

Editorials

The Forsyth Loving Cup.
The Forsyth Infirmary and Its Future.
The Dental Nurse or Dental Hygienist.
The Daily Press and the Dental Meeting.
A Dollar a Copy for Oral Hygiene.

[*New York Medical Journal*, July 31, 1915]

DENTISTRY IN THE BRITISH ARMY

In response to a parliamentary inquiry the Under Secretary for War of Great Britain recently explained the status of the dentist in the British army as follows: In some places there are specially appointed dental surgeons who devote their whole time to the troops. In others the work is done by selected civilian dental surgeons on terms arranged between them and the local military authorities, subject to a limit laid down by the War Office. A number of whole time dental surgeons have received commissions, but there is no army dental corps and no need for one. The Government has no laboratory for supplying dentures, but in certain places, including France, there are dental mechanics' shops for making and repairing dentures. At other places dentures are supplied by civil dentists on terms arranged locally, subject to a maximum fixed on the advice of expert dentists. The Government is getting dentures at reasonable rates and the taxpayer is carefully protected.

DO WE BEAR INSPECTION?

Tenements, restaurants, bakeries, and other public places are being inspected by physicians, or at least at their instigation; the very existence of boards of health is due to suicidal efforts by the profession. This tendency to examine into health conditions is rebounding upon its inventors, and the doctor's professional premises had better be kept at all hours in proper condition for examination by those he has himself educated to ways of cleanliness.

One of these nonofficial sanitarians, expert at least in the matter of detecting the presence or absence of dirt, recently sent an open letter to a prominent newspaper on the unsanitary condition of some effects in the doctor's waiting room. It was written in kindly spirit, but the physicians who read the letter must have been set both thinking and doing. This critic called special attention to the condition of the literature by which the physician entertains and hopes to retain his patients while they await his convenience. Often these have been used by patient after patient, until they are filthy, though magazines are so cheap that there is no excuse for such a condition. In fact, one could almost afford to furnish each patient with a new one and ask him to carry it home as a souvenir. The physician is doubtless aware that there is little likelihood of the transmission of any save skin diseases by means of books and magazines,

but the public is not so sure of this, and it naturally connects disease with filth. Moreover, one is apt to judge the condition of the man in the office by the condition of his waiting room.

The general condition of the waiting room is not always what it should be, and with some clientèles it is not so easy to keep it in fresh and inviting condition, but the furniture and floor coverings need not be of such a character that they hold dirt and are difficult to clean, and an effort at least might be made to make the most of what one has.

The more prosperous a physician is, the more careless he is apt to become in these matters, and too many of us become not only careless in our offices but slovenly in our personal appearance. Though we may not spread disease, we are not setting an example in that quality which is next to godliness and which makes for health.

[*Medical Record*, July 31, 1915]

AUTOINOCULATION IN THE TREATMENT OF MOUTH INFECTION*

By Joseph Head, M.D., Philadelphia, Pa.

Dr. Joseph Head of Philadelphia presented this communication. He stated that during the past year, as in previous years, vaccine had continued to prove of great value in the treatment of mouth infections, but it must not be forgotten that vaccine without effective surgical treatment could be of little service. The essayist showed charts which demonstrated the value of blood counts in the use of vaccines and said that the blood counts had taught him to be more moderate in his dosage, and he had found that patients responded at least as well as, if not better than when the doses were pushed to the point of getting marked reactions. He cited the blood counts in several cases which showed that without them injury might unquestionably have been done by excessive dosage with vaccines. Lymphocytosis did not seem to be as much of a factor as he had thought last year. When he had first undertaken the work he had hoped to be able to make more positive statements than his late knowledge would permit; this was largely due to the difficulty he had had in finding individuals with a normal leucocyte count. The essayist stated that no paper on mouth infection would be complete without some reference to amebæ. He had been using emetine, $\frac{1}{3}$ of a grain administered hypodermically, in the arm or back for ten successive days during the treatment and had felt that it was a great adjuvant to the vaccine treatment of mouth infection. However, no single drug would cure advanced pyorrhea alveolaris without the aid of good dental surgery. The

*From Society Reports.

most successful remedy, usually an actual specific, for pyorrhea was autoinoculation by means of the energetic use of a stiff tooth brush and floss silk. The speaker then described his method of removing the offending matter of micro-organisms and at the same time securing a curative autoinoculation by the use of these mechanical cleansers. Improperly used, or used as it was ordinarily, Dr. Head said, tooth brushing was a delusion, but scientific, careful cleansing with implements of the proper size and shape would unquestionably add years of healthful existence to every man, woman, and child in the community at large.

Dr. C. C. Bass, Tulane University, New Orleans, La., said that the subject of pyorrhea alveolaris had interested him many months and the more he studied the subject the deeper he got. He was now studying the pathology of the disease but later he expected to take up the bacteriology and then the protozoology, and finally the treatment of this disease. The information he had got during the past few months was appalling in showing the great prevalence of the disease. It had taken a great deal of time before they were able to make the diagnosis, but he still found that in many cases it was still impossible to make a correct diagnosis. The diagnosis made by the dentists was no better than the diagnosis he made. As they all knew, the dentist made the diagnosis of pyorrhea alveolaris when he was able to squeeze pus from the gum or a pocket around a tooth. Whenever he saw a drop of pus, he made the diagnosis of pyorrhea. The condition could not be cured by simply giving medicine. The surgical treatment was what was called for. They had seen about 500 cases and found only two of this number in whom they were not able to demonstrate pus and the *Endameba buccalis*. The endameba did not attack normal tissues; there must first be present damaged tissue, some particular tissue that was susceptible to infection. It should be remembered that the *Endameba buccalis* lived, grew, and reproduced in the peridental membrane of the human being, and probably that of other animals. It fed upon certain cells that were found in some suppurative foci. The kind of cells it fed upon were much more numerous in suppurations next to bone tissue. The endamebæ were continually crawling around and hunting for food, and were in direct communication with the bacterial flora contained in the mouth. Dr. Bass did not believe in any treatment that did not take into consideration the rôle played by the *Endameba buccalis*. The surgical treatment was very important. The lesions progressed rapidly with destruction of the soft parts, thus exposing the bone. The danger from this disease came from the members of the family who drank from their cups leaving the *Endameba buccalis* where an acquired lesion would be infected, a mouth to mouth infection. Everybody, if he lived long enough, would lose his

teeth from this disease if untreated; it was a long sloughing process and dependent upon the flora in the individual mouth.

THE BLIND DENTAL ABSCESS

By Henry L. Ulrich, M. D., Minneapolis, Minn.

Dr. Henry L. Ulrich of Minneapolis read this paper, which he prefaced by stating that blind dental abscess was rather a loose term though the other names thus far suggested such as alveolar abscess, peridental abscess, or apical abscess, were not very satisfactory. Apical abscesses were never found at the roots of vital teeth. The pathological anatomy of these areas was not very well understood. The skiagraph indicated a range from a rarifying infiltration to a well-defined area of bony necrosis. Extraction of these teeth showed root necrosis and absorption. Microscopic section of these so-called pus sacs showed an outer dense area of connective tissue with infiltrating areas of round cells made up of plasma cells and lymphocytes. Various stages of acute and chronic inflammatory processes were shown. Besides round-celled infiltration polymorphic types were noted. Sections stained for bacteria proved unsuccessful. At the University of Minnesota Hospital, in an effort to correlate oral sepsis with systemic lesions, a special inspection of mouths was made for pyorrhea, gingivitis, caries, and, by means of the X-ray, for apical abscesses. They were struck by the frequency of apical abscesses in these cases. Further search was made for these lesions by studying the roentgenograms of the mouth in a medical X-ray laboratory. The findings were startling. A little over 68 per cent. of all artificially devitalized teeth were found with apical abscesses and a total number of abscesses, including those found in pulpless teeth due to caries, or death from accident, or too proximal fillings, was 83 per cent. In the examination of 500 cases, 1,350 dead teeth were found and of these 976 had root canal fillings. Of these cases 159 with apical abscess had had bacteriological review and of 107 cases from the University Clinic 100 gave a streptococcus viridans. Fifty-two were from the author's private clinic and fifty of these gave a viridans or a hemolyticus; occasionally mucosa was recovered. Thus 150 of these 500 cases gave evidence of streptococcus, either in pure culture or as the dominant organism. Occasionally the staphylococcus aureus, or albus, or the micrococcus catarrhalis was also observed in conjunction with the streptococcus. To the writer the apical abscess was merely another evidence of a focus of streptococcal focal disease, just as the heart, the mucosa of the stomach, the articulations or the kidneys were evidence of secondary deposits. In other words it was hematogenous in origin. The pathogenicity of these abscesses and their relation to other concurrent foci had had ample clinical

verification: First, because acute exacerbation of systemic symptoms followed their removal, that was, focal reactions occurred due to autoinoculation at the time of their reduction. Second, acute new systemic symptoms had followed reduction of these areas; in other words, other foci had been established. Third, improvement and sometimes total recession of other focal areas followed the extirpation of these sites. Fourth, local and focal reactions occurred with vaccines prepared from apical areas. A recent analysis of seventy-six cases in which a streptococcus was isolated from apical pockets showed that thirty-eight cases belonged to the rheumatoid group; six cases to the cardiovascular group; three to the asthenic; four to the gastrointestinal; two to the genitourinary allied to the rheumatoid group. A subgroup of eight cases consisted of those in whom the streptococcus focal infection was superimposed of syphilis, tuberculosis, primary anemia, or vice versa. The striking feature of this analysis was the diversity of clinical manifestations for which streptococcal focal infection was responsible. The diversity of symptoms was so marked that he had suggested the term "Streptococcicosis" for streptococcal focal disease. Experience with alveolar infection in which systemic symptoms were present had made them very cautious concerning the apparently innocent looking tonsil. Invariably the same tonsil on closer inspection, and particularly after it had been removed under protest, had proven their suspicions correct. To those who were attempting active immunization to disease, the blind dental abscess had a very practical significance; it might be the only focus left and might hold the balance of power in the struggle of the body for complete sterilization. In every case of streptococcal focal infection its presence or absence must be established. Such a focus would furnish material for the preparation of vaccines and much trouble and disappointment from attempting cultures from glands and tonsils could thus be avoided. Of the more striking symptoms in these groups they had manifestations of rheumatoid conditions in 51 per cent.; heart lesions, 47 per cent.; secondary anemia, 43 per cent.; tonsils, 40 per cent.; pyorrhea, 25 per cent.; kidneys (albuminuria and nephritis), 34 per cent.; caries, 15.8 per cent.

[*The British Medical Journal*, July 17, 1915]

ODONTOMES

At the annual meeting of the British Dental Association held in London in 1906 the most complete collection of odontomes ever assembled was shown. It was sought to give permanence to the labor thus entailed by the appointment of a subcommittee, consisting of Messrs.

D. P. Gabell, W. W. James, and J. L. Payne, charged with the task of drawing up a report on the classification of odontomes.

As a classification they propose: (1) Epithelial odontomes, in which the abnormal development takes place in the dental epithelium alone. 2. Composite odontomes, in which the abnormal development takes place primarily in the dental epithelium, and secondarily in the dental papilla, and may occur in the follicle also. (3) Connective tissue odontomes, in which the abnormal development takes place in the dental tissues of mesoblastic origin alone.

The first class includes multilocular cysts, dentigerous cysts, and dental cysts. Of the three forms of tumor, only one, "dentigerous cyst," definitely conforms with the reporters' definition of "odontome" as a tumor derived from the special cells concerned in tooth development, and is of unknown etiology. As they admit, there is strong evidence that multilocular cysts may arise from ingrowth of the gum epithelium, as held by Eve; and in the case of dental cysts, J. G. Turner has shown clearly their dependence on chronic bacterial infection. It is permissible to believe, with the reporters, that the epithelial ingrowth demonstrated in the multilocular cysts arose from some portion of the tooth band, though demonstration appears impossible.

The second class includes (*a*) complex composite odontomes, compound composite odontomes; (*b*) geminated composite odontomes, gestant composite odontomes, enamel nodules; and (*c*) dilated composite odontomes. The report seeks to extend the use of the term "composite odontome" till it includes "all odontomes dependent on aberrations of the enamel organ with other dental tissues." It would thus include almost all calcified odontomes, and the three subdivisions are dependent on the general effect the irregular development of the dental epithelium has upon the dentine papilla.

The term "complex composite odontome" is used to include tooth tumors that are formless and whose tissues are irregularly mixed; "compound composite odontome" is the name given to Bland-Sutton's class "compound follicular odontome." These are tumors in which are found more or less numerous denticles or calcified masses together with cyst formations which may attain a large size. Bland-Sutton explains them as due to sporadic calcification of the cyst wall, but this explanation is obviously incomplete, and the report recognizes six different methods of origin. The first two, non-eruption of several supernumerary teeth and deformity of several of the ordinary tooth-germs, might well be classed as "compound follicular odontomes," and the sixth, sporadic calcification of a thickened capsule about a tooth germ or germs, is a restatement of Bland-Sutton's explanation (such calcification would give rise to bone

and the tumor would be a cementoma). It may be questioned, however, whether the dental follicle is a distinct enough structure to be worth charging with tumor formation. Bland-Sutton falls back on it to account both for cystic tumors derived from the dental epithelium, where the follicle may be supposed to be the indefinite fibrous capsule lined with epithelium surrounding the crown of the tooth, and for cementomata which arise in parts (around the roots) where no follicle or capsule can possibly be found.

Of the further subdivisions of composite odontomes suggested, "geminated composite odontomes" may be found a useful class in connecting supernumerary teeth or geminated teeth with more obvious odontomes. "Gestant odontome" is the *dens in dente* of Continental writers; "enamel nodule" is self-explanatory and rightly included as odontomatous; "dilated composite odontome" does not seem to us a well-chosen term, since it is made to include both solid and hollow tumors, and refers only to form.

The third class made in the report includes fibrous odontomes and cementomes, and it is correctly stated that fibrous odontomes are probably a result of rickets. An important point is made when attention is drawn to the microscopic diagnosis of cementomes. They are rare tumors, composed mostly of non-laminated cementum with plentiful irregular vascular canals, while root-exostosis, with which they are liable to be confounded, is common, laminated, and little vascular.

The report denies the existence of malignant odontomes, with the exception of the composite embryoplastic odontome of Eve, and it seems to be implied that a careful consideration of recorded cases of "burrowing epithelioma," etc., shows that these tumors are not malignant. This opinion will undoubtedly be disputed; burrowing epitheliomata are very malignant, and the origin of some of these growths from dental epithelium seems unquestionable.

The reporters appear to have felt that their effort is not final, but in publishing the results of eight years' patient labor, freely given, they have placed the whole dental profession under a debt of gratitude which can best be repaid by study and discussion of their work.

THE RONTGEN SOCIETY

The Röntgen Society, at its June meeting, under the chairmanship of Sir A. Pearce Gould, held a discussion on the *Protection of the X-ray Operator*. The question was considered whether the methods of X-ray protection commonly employed were sufficient. Some remarkable figures were brought forward by Mr. Sidney Russ, who had been investigating the value of the protective materials commonly supplied. In the

case of lead rubber used for X-ray installations he found great differences in thickness and quality. The following figures relating to various samples received from three manufacturers, X. Y. and Z, were given:

	Thickness of lead rubber in millimetres	*Percentage of x-ray energy transmitted*
X	2.2	1.4
Y	1.54	4.9
Y	3.07	1.1
Z	1.25	5.0
Z	5.8	0.1

With some installations, therefore, as much as 5 per cent. of the energy coming from the bulb actually penetrated the protective material, and it should be remembered that during screen examinations the operator stood very near to the bulb. In the case of lead glass used for screens the figures were more perplexing:

	Thickness of lead glass in millimetres	*Percentage of x-ray energy transmitted*
X	3.63	2.9
Y	3.87	5.5
Y	5.0	4.1
Z	3.25	4.3
Z	3.65	3.4

While the thickness of lead rubber appeared to be more or less a measure of its efficiency, the thickness of lead glass seemed to have no relation to its absorptive power; on the other hand, a slight addition of density apart from thickness reduced the percentage transmitted in a most marked degree. The density of the glass, therefore, was the only criterion of its efficiency. Mr. J. H. Gardiner, F.C.S., the President-elect of the Society, pointed out the part played by secondary radiation whenever X-rays of any considerable intensity were produced. As a means of guarding against these vagrant radiations, mere protection in the plane of the anticathode was not enough, and Mr. Gardiner advocated the complete enclosure of the tube in good and heavy lead glass. Dr. Finzi also considered it important to enclose the tube as completely as possible and to use the smallest diaphragm. A resolution as adopted, on the motion of Mr. C. R. C. Lyster, embodying the opinion of the society that it was of the greatest importance that the personal safety of the operator making the examination should be secured by the universal adoption of stringent rules. It was added that the council of the society would hold a special meeting at an early date to give effect to this resolution.

SOCIETY NOTES

THE FOURTH AUSTRALIAN DENTAL CONGRESS

The South Australian Executive, after consulting with the State and Federal Councils of the National Dental Association of Australia, have reluctantly decided to postpone the date of Congress indefinitely.

This Executive remains operative, but has been discharged *sine die*, and the regrettable feature is that the South Australian Executive should be required, owing to a circumstance of drought and war, to relinquish matured efforts which promised to bring the function to a brilliant Scientific and Social success.

Deliberation eventuating between this Executive and that of the N.D.A. in each State indicated that a General Meeting of the Federal Council of the National Society shall be summoned to meet in Melbourne on Wednesday, November 3d next.

50 North Terrace,
Adelaide, S. A., May 11, 1915

ALEX. SWANN, Hon. Secretary.
ARTHUR CHAPMAN, D.D.S.,
Hon. Assistant Secretary.

FLORIDA STATE DENTAL SOCIETY

At the last meeting of the Florida State Dental Society held at Pass-A-Grille, Fla., in June, the following officers were elected for the ensuing year:

Dr. A. M. Jackson, Lakeland, President.
Dr. J. L. Williams, Jacksonville, First Vice-President.
Dr. C. J. Caraballo, Tampa, Second Vice-President.
Dr. D. D. Crews, Fort Myers, Recording Secretary.
Dr. M. C. Izlar, Ocala, Corresponding Secretary.
Dr. F. S. Robinson, Jacksonville, Treasurer.

Dr. C. L. Nance, Tampa, Chairman; Dr. W. K. Bradfield, St. Petersburg; Dr. J. Lynn, Fernandina; Dr. G. A. Brummett, Fort Myers; Dr. H. L. Chilson, Bradentown, Executive Committee.

FUTURE EVENTS

October 7–8, 1915.—Northern Indiana Dental Society, Bluffton, Ind.—C. A. VAN KIRK Kendallville, Ind., *Chairman Ex. Committee.*

October 12–13, 1915.—40th Annual Meeting of the Lebanon Valley Dental Society, Lebanon, Pa.—E. P. KREMER, *Chairman Exhibit Committee.*

October 13–15, 1915.—Northeastern Dental Association, Springfield, Mass.—ALVIN A. HUNT, *Secretary.*

October 20–21, 1915.—Northern Illinois Dental Society, Annual Meeting, Freeport,—F. H. BOWERS, *Secretary.*

October 19–22, 1915.—Dental Manufacturers' Club Exhibit, Waldorf Astoria, New York City, N. Y.

November, 1915.—Arizona State Dental Society, Phoenix, Ariz.—DR. J. L. O'CONNELL, Phœnix, Ariz., *Secretary.*

November 1–6, 1915.—Michigan State Board of Dental Examiners, Ann Arbor, Mich.—A. W. HAIDLE, Negaunee, Mich., *Secretary.*

November 4–6, 1915.—Virginia State Dental Association, Richmond.—C. B. GIFFORD, Norfolk, Va., *Secretary.*

November 11–13, 1915.—Union meeting of the 5th, 6th, 7th and 8th District Dental Societies at the Onondaga Hotel, Syracuse, N. Y.—A. C. BICKELHAUT, 515 Kirk Bldg., Syracuse, N. Y., *Chairman Ex. Committee.*

December 7–9, 1915.—Ohio State Dental Society, Columbus, O.—F. R. CHAPMAN, *Secretary.*

January 25–27, 1916.—American Institute of Dental Teachers, Minneapolis, Minn.—J. F. BIDDLE, *Secretary-Treasurer.*

April 14–16, 1916.—West Virginia State Dental Association, Kanawha Hotel, Charleston, W. Va.

May, 1916.—Indiana State Dental Association, Claypool Hotel, Indianapolis, Ind.—A. R. ROSS, *Secretary.*

June, 1916.—Florida State Dental Society, Orlando, Fla.—M. C. IZLAR, *Corresponding Secretary.*

THE FORSYTH DENTAL INFIRMARY

The Forsyth Dental Infirmary, Boston, for children, announces that a training school for women Dental Hygienists will be opened on October 4th, 1915.

HAROLD D. W. CROSS, *Director.*

PATENTS

1111144, Tooth brush, Harris Epstein and W. Ciler, New York, N. Y.
1111019, Tooth brush, J. E. Hamilton, Smithton, Pa.
1111392, Dental anvil or swage-block, Louis F. Koehler, Chicago, Ill.
1111603, Dental tool, Joseph P. Mertens, Los Angeles, Cal.
1111177, Dental engine bracket, O. H. and A. F. Pieper, Rochester, N. Y.
1111178, Electrical controlling apparatus, O. H. and A. F. Pieper, Rochester, N. Y.
1111110, Dentist's tool, Jacob Trost, New York, N. Y.
1111047, Reservoir cuspidor, Henry E. Weber, Canton, Ohio.
46450, Design, Tooth brush, Jules J. Sarrazin, New Orleans, La.
1112252, Artificial tooth, G. L. Bienvenu, New Orleans, La.
1111730, Dental bridge, Henry P. Boos, Minneapolis, Minn.
1112180, Dentifrice, C. W. Westenfelter, Springfield, Ohio.

Copies of above patents may be obtained for fifteen cents each, by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

WORRY AND FRET

Worry and Fret were two little men
That knocked at my door again and again.
"Oh pray, let us in, but to tarry a night,
And we will be off with the dawning of light."
At last, moved to pity, I opened the door
To shelter these travelers, hungry and poor;
But when on the morrow I bade them "adieu,"
They said, quite unmoved, "we'll tarry with you."
And, deaf to entreaty and callous to threat,
These troublesome guests abide with me yet.

—*Exchange.*